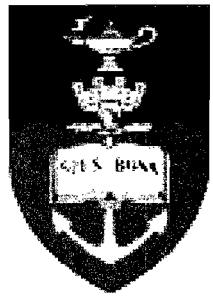

AN INVESTIGATION INTO FACTORS THAT ARE ASSOCIATED WITH LOW LEARNERS' PERFORMANCE IN DEVELOPMENT STUDIES (DS) AS COMPARED TO GEOGRAPHY PERFORMANCE AT CAMBRIDGE OVERSEAS SCHOOL CERTIFICATE (COSC) IN THE SOUTHERN REGION OF LESOTHO

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF EDUCATION AT THE UNIVERSITY OF CAPE TOWN

BY

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DECEMBER 2004

DECLARATION

I declare that the work presented in this dissertation is my own except where it is otherwise stated in the text. It has not been submitted for any degree or examination at any other university.

Signed by candidate

Litsabako Hilda Tsoene

December 2004.

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God must be thanked.

ABSTRACT

This study sets out to examine factors that are associated with learners' academic achievement in development studies (DS) as compared to geography at the Cambridge Overseas School Certificate (COSC) level in the southern region of Lesotho. The main concern of the study is to determine the causal factors that account for the under-achievement in DS examination results compared to the higher achievements in geography.

The study adopts qualitative and quantitative approaches. Data was collected through semi-structured interviews with sixteen DS teachers and nine geography teachers in eighteen case study schools, which offer either DS or geography, or both at COSC level. Documents such as students' notebooks and workbooks as well as examination results were analysed.

The study focuses on the factors that emerge from the literature within an educational policy perspective as determinants of learners' academic achievement. These factors are: teacher experience, class size, teacher qualifications, in-service teacher training, instructional facilities and materials, homework, organisation of the school curriculum and examinations as well as the use of English as a second language. These factors provided a conceptual framework for this study and data collection was based on them. The correlation coefficient was used to calculate the degree of relation between these factors and learners' examination results. The nature and complexity of assessment tasks within DS and geography examinations; the use of English as a second language; and students to subject distribution emerged as causes of low performance in DS. The other factors derived from the literature did not have any significant relationship with learners' performance in this study.

List of abbreviations

BA Ed	Bachelor of Arts in Education
BA Law	Bachelor of Arts in Law
BCER	Business Coalition for Educational Reform
B Ed	Bachelor of Education
BSc Ed	Bachelor of Science Education
CI	Central Inspectorate
COSC	Cambridge Overseas School Certificate
DS	Development Studies
ECOL	Examination Council of Lesotho
HOD	Head of Department
ID	Identity
IIEP	International Institute for Educational Planning
JC	Junior Certificate
LCE	Lesotho College of Education
M Ed	Master of Education
NCDC	National Curriculum Development Center
n.d	no date
NPIN	National Parent Information Network
NUL	National University of Lesotho
PGDE	Postgraduate Diploma in Education
PISA	Programme for International Students Assessment
TRC	Transformation Resource Centre
UCLES	University of Cambridge Local Examination Syndicate

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Fund
USA	United States of America

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CHAPTER 1: INTRODUCTION

The intention of this study is to identify factors impacting on THE relatively lower performance in development studies (DS) as compared to relatively better performance in geography in the Cambridge Overseas School Certificate (COSC) in the southern region of Lesotho.

This study adopts an education management and policy perspective. By this I mean that the focus is primarily on organisational and resource factors that are normally addressed in a literature that is loosely referred to as the policy field. However, this focus has been extended to include consideration of management of the curriculum and the position of the two subjects under consideration in the curriculum. Teachers' perceptions regarding the demands of these subjects on teachers and students are also considered.

1.1 Statement of the problem and its context

Reports indicate that the general performance in most subjects in COSC examinations in Lesotho is not encouraging. For instance, in most subjects, the majority of students do not pass with A, B, or C. They just get ordinary passes. Only in four subjects do over 50% of students pass with credit. Those subjects are; combined science, religious knowledge, fashion and design as well as food and nutrition. (See table 1 below).

Examination results and examiners' reports in Lesotho show that students perform relatively badly in DS compared to other social science subjects, such as geography. According to the *Examination Council of Lesotho (ECOL)* (2004), the overall COSC performance in 2003 has generally been slightly better than that of 2002 in subjects such as languages, sciences, religious studies, geography, DS and practical subjects. The degree of improvement in DS was not the same as in other subjects. In 2003, the performance gap between DS and other subjects actually widened.

This study is not concerned with performance across the system as a whole, but with a comparison between two subjects within the system. In this respect it is different from most studies that relate students' performance to various explanatory factors. As will be seen in the literature review in chapter two, most such studies compare whole systems (or sub-systems) to each other, but do not compare different subjects within the same system.

1.1.1 Secondary education in Lesotho

Secondary education in Lesotho comprises two levels. Level one is referred to as the Junior Certificate (J.C) level. The Junior Certificate is awarded to a student after successful completion of the three classes, which are Form A, Form B and Form C. Level two is normally referred to as the Cambridge Overseas School Certificate (COSC) level. The COSC level is awarded after completion of Form D and Form E (*Educational Policies in Lesotho*, 2003). This dissertation focuses on the second level (COSC), and specifically on Form E.

1.1.2 Curriculum structure at COSC

Although a number of different subjects are offered at high schools in Lesotho, there is a common core curriculum that comprises English, maths, science and Sesotho. Additional subjects include history, DS, geography, business studies, commerce, and religious knowledge. According to *The Educational policies in Lesotho* (2003), a student should take a minimum of seven subjects. The selection of additional or alternative subjects depends on the individual school curriculum and is decided upon by schools. It is for this reason that DS and geography, which are the subjects of interest in this study, are not part of the curriculum of many high schools in Lesotho. Out of a total number of 310 high schools in Lesotho, 72 offer DS, while 62 offer geography. 71 have both subjects in their COSC curricula. In the southern region, which is the specific area of study for this research, fifteen schools offer DS but do not offer geography and only three offer geography but do not have DS. Seven schools offer both.

1.1.3 Development Studies (DS)

Development Studies is an interdisciplinary field relating to the study of societies, economies, and institutions of developing countries that are peripheral to the developed world. Within this broad field, students learn about factors such as economic development, trade, aid and debt, rural and agricultural development, democratisation, social and human development as well as development and the environment (Welsh and Butorin, 1990). This subject was first introduced in the COSC curriculum in Lesotho in 1986.

According to the *Development Studies Revised Syllabus Document* (1994), the major aim of the teaching and learning of DS is to increase students' knowledge and understanding of the process of development and its problems. Seotsanyana states:

> Development Studies intends to develop positive attitudes, intellectual, social and other skills conducive to effective participation in community and national development. It is an active subject that requires very knowledgeable, active and hardworking teachers who are able to [be] current with world affairs (*sic*) (Seotsanyana 2003: 3).

She further highlights that since attitudes play an important role in the teaching and learning of DS, a DS teacher must use innovative and student-centred instructional methods.

1.1.4 Development Studies and geography performance in relation to performance of other subjects

Although the pass rate is even worse in other subjects than in DS, especially in the core subjects as evident in table 1, this study is based on the fact that performance in DS is below expectations. The DS pass rate is lower than other comparable and optional subjects such as religious knowledge and geography. However, I am comparing DS and geography for the reason that they have overlapping content, yet students' performance between these two subjects differs.

Table 1: A comparative analysis of performance patterns in COSC

Subjects	Academic year	Pass with credit % (A,B,C)	Ordinary pass %	Overall pass %	Ungraded (fail)%
Geography	2002 2003	34 30	40 43	74 73	26 27
Development Studies	2002 2003	20 20	42 44	62 64	38 36
English Language	2002 2003	7 8	32 72	39 40	61 70
English Literature	2002 2003	19 19	30 31	49 50	51 50
History	2002 2003	21 14	27 34	48 48	52 52
Mathematics	2002 2003	10 8	24 23	34 31	66 69
Commerce	2002 2003	24 23	40 40	64 63	36 37
Principles of Accounts	2002 2003	22 22	32 30	54 52	46 48
Biology	2002 2003	12 14	28 26	40 40	60 60
Human Social Biology	2002 2003	24 25	31 28	55 53	45 47
Chemistry & Physics	2002 2003	26 28	44 42	70 70	30 30
Biology & Chemistry	2002 2003	19 20	49 54	68 74	32 26
Combined Science	2002 2003	52 54	36 34	88 76	12 24
Additional Combine Science	2002 2003	31 32	45 40	76 72	24 28
Sesotho	2002 2003	46 48	44 46	90 94	10 6
Religious Knowledge	2002 2003	51 51	26 28	77 79	23 21
Agriculture	2002 2003	37 34	40 36	77 70	23 30
Woodwork	2002 2003	62 63	35 32	97 95	3 5
Fashion & Fabrics	2002 2003	60 48	39 41	99 89	1 11
Food & Nutrition	2002 2003	75 84	21 16	96 100	4 ----

SOURCE: Examination Council of Lesotho, *COSC Pass List (February 2004)*

– DS and geography performance in relation to other subjects (Percentages are numbers of learners not average grades).

1.1.5 Development Studies and geography examination results

The overall performance of students in DS has been considerably lower in the majority of high schools throughout Lesotho when compared to geography. Both DS and geography are part of the social sciences although geography comprises social science and natural science. Geography has a more specialised terminology and a more abstract content than does DS and, in this sense, may be expected to be a more difficult subject. However, geography examination results are relatively better than those of DS.

As shown in table 1 on the previous page, the overall pass rate for geography in 2002 and 2003 was 74% and 73%, while that of DS in the same years was 62% and 64%. Even though this might suggest that the gap is closing, the failure rate of about 40% in DS is unacceptably high. I was unable to get the examination results of the years prior to 2002 in some schools in the region. I was however able to access geography and DS results for 2000 and 2001 in six schools. In these years, geography results were consistently higher than that of DS with a difference of 10% on average.

1.1.6 A brief overview of determinants of academic achievement

Research has shown that there are certain factors that influence the success of students at secondary school level. Predominant factors argued in the literature to be responsible for learners' academic performance at secondary level are *teacher experience* (Husen et al, 1978; Marope, 1996; Darling-Hammond, 2000; Goldhaber and Brewer, 2000), *class size* (Lynn, 1988; Samoff, 1996; Betts, 1999; Checchi, 2003; Hanushek, 2004; Izum, 2004), *in-service teacher training* (West, 1996; Koster-Bunselmeyer, 1998 UNESCO, 2000), *teacher qualifications* (Hanushek, 1994; Betts, 1999; Goldhaber and Brewer, 2000; Rice, 2003), *instructional facilities and materials* (World Bank, 1988; Harbison and Hanushek, 1992; Gupta and Gupta, 1995; Marope, 1996; Betts, 1999; UNESCO, 2000), *homework* (Anderson, 1986; Cooper, 1994; Walberg, 1994), *curriculum organisation and examinations* (Lunn, 1970; Ward, 1980; Riding and Butterfield, 1990) Eckstein and Noah, 1992; Grossen, 1996; Allen, 1999; Morris, 2000) and *use of English as a second language medium of instruction* (Eckstein and Noah, 1992; October, 2002).

This study considers whether the difference between results in DS and geography can be explained with reference to all or some of these factors.

1.2 Research question

In order to address the aim of this study, the research more specifically attempts to find answers to the following question:

- What are the factors that explain lower achievement in DS at COSC level in relation to relatively better performance in geography?

1.3 Rationale for the study

The research question for this dissertation has arisen out of my own educational engagements. As a DS teacher, a DS marker and a DS resource teacher, I am aware of and concerned about, students' under performance in DS at COSC level. Furthermore, other DS teachers I know also express anxiety about this level of performance in DS. The examiners' reports also declare that performance in DS is not encouraging.

On the other hand, as a geography teacher, I have been aware that learners perform relatively better in geography than in DS. I was therefore interested to identify factors that are associated with this phenomenon. The results of this study could be used to inform the pedagogical and methodological tools within the teaching and learning of DS and geography.

1.4 Chapter outline

This chapter introduces issues around learners' academic performance specifically in Lesotho. It provides a brief overview of the secondary education curriculum in Lesotho, and a short explanation of DS as part of this system. The chapter states the problem motivating the study and its context. The research question is presented and the rationale for this particular research project is given.

Chapter two presents a comprehensive review of literature relating to factors that are associated with learners' performance, especially at the higher secondary level, within an education policy context.

Chapter three outlines the research methodology. This chapter also presents instrumentation used in data collection and discusses ethical considerations.

Chapter four presents the results of the study. Firstly, factors that are associated with low learners' performance as argued from the literature review are discussed in terms of their explanatory value in the study. Secondly, beyond the factors that had been identified in the literature review, additional factors that emerged in the course of the field study are also considered.

The final chapter (chapter 5), discusses the results presented in chapter four. This chapter also presents the conclusions. These are discussed with regard to their significance in explaining the difference between performance levels in DS and geography in the high schools that participated in this study.

CHAPTER 2: LITERATURE REVIEW

In this chapter I discuss causal-comparative research studies surrounding learners' performance. My literature review is grounded within the education policy perspective. As mentioned in chapter one, this study, and also the literature review, is grounded within the education policy perspective.

In particular, much of this literature looks at the level of significance that certain school inputs have in relation to learners' performance. I also review research that relates to the way subjects are managed within the school curriculum. This review draws key factors from this specific literature and considers the significance of arguments that emerge.

A sturdy body of literature indicates that educational researchers have carried out numerous investigations relating to factors that contribute to low students' academic performance. Key factors that emerge from the literature are:

- Teachers' experience
- Class size
- In-service teacher training
- Teachers' qualifications
- Instructional facilities and materials
- Homework
- Organisation of school curriculum and examinations
- Use of English as a second language

Most of the studies reviewed here describe the effects of particular factors (such as class size for example) on the system as a whole. On the other hand, this study attempts to assess how useful such factors are in explaining differences between subjects within a system.

All these factors are discussed in this chapter, beginning with teachers' experience.

2.1 Learners' performance and teachers' experience

Several studies have been conducted to examine the relationship between teachers' experience and learners' academic performance. Teachers' experience in this study refers to the number of years a teacher has taught a certain subject such as DS and or geography. In both developed and developing countries, there seems to be no study that opposes the conclusion that there is a significant relationship between teachers' experience and learners' performance.

In an early study from a developing countries perspective, Husen et al (1978) argue that teachers' experiences are related to learners' achievement; those with more experience in teaching a particular subject have a greater positive impact on students' achievement than those who have less teaching experience. Husen et al (1978) cite a study conducted in Kenya by Thias and Carnoy which found that teachers' seniority (experience) is a better predictor of students' performance than formal qualifications. They argue that examination results produced by beginning teachers are not as good as those produced by more experienced teachers.

Husen et al's study was conducted about three decades ago. In a more recent contribution, still from a developing country's point of view, Marope (1996) argues that in Botswana, studies have found that schools that have more experienced teachers outperform schools with less experienced teachers.

From the point of view of the developed world, Darling-Hammond (2001) has done a study in the state of California, which is the state where the teaching

force had the oldest average age in the American nation. She argues that with these experienced older teachers going out of the teaching service and beginning teachers coming in, California has subsequently seen a rapid depletion of its experienced mathematics teachers and this has affected maths tests scores negatively. She asserts that experienced teachers know what they are doing and they do it well, which makes a difference in students' test scores.

To summarise, early studies in African countries conclude that there is a significant correlation between teachers' experience and learners' academic achievement, while more recent studies from the United States of America (USA) also find teacher experience to be a positive determinant of learners' scholastic success. However Goldhaber and Brewer (2000) assert that performance of new teachers can be enhanced by proper induction programmes, efficient teaching aids and the acquisition of new teaching methods.

2.2 Learners' performance and class size

There have been significant debates in the last decade concerning the existence of a correlative relationship between class size and learners' academic results. In both developed and developing countries there are studies that argue for and against reducing class sizes and teacher-pupil ratios with the intention of increasing learners' performance. I understand the difference between class size and teacher-pupil ratio. However this study is concerned with class size which assumes it affects learners' academic achievement.

Checchi (2003) reports a study by the Department of Education at the University of Milan that considers whether the significant reduction in the pupil-teacher ratio observed in Italy between the end of the Second World War and the end of the 1980s had a significant impact on the educational attainment and labour market returns of a representative sample of Italians born between 1941 and 1970. Checchi (2003) states that they found that a lower class size is positively correlated with higher educational attainment.

Still on the same issue, the National Parent Information Network (NPIN) (1996) reports that an investigation undertaken in Tennessee secondary schools by Tennessee State University indicates that teachers believe that a high class size and student-teacher ratio impacts negatively on performance. For instance teachers argue that:

- students in smaller classes show more appreciation for one another and more desire to participate in classroom activities,
- more learning activities take place, and students participate more often in them,
- teachers have more time to monitor students' on-task behaviour during the instructional process, and they are able to provide quicker and more thorough feedback to students, to reteach concepts as needed, and to provide in-depth instruction,
- greater interaction among students helps them to understand one another and increase their desire to assist one another (NPIN 1996:1).

Lynn (1988) also acknowledges the importance of class size reduction, arguing that studies in Japan have shown that when classes are smaller, teachers give children more individual attention, thus raising efficiency of instruction and results in better learning.

Studies in developing countries have been more tentative, but have broadly agreed that smaller class sizes are associated with better performance. Large class sizes may be a good way for an education system to expand initially, and to achieve cost-effectiveness, especially in developing countries. However, UNESCO (2000) suggests that the highest quality of education may only be achieved with smaller teacher-pupil ratios.

Samoff (1996) draws on *The World Bank Priorities and Strategies for Education* to argue that an increasing student-teacher ratio or class size is likely to reduce student-teacher interaction and supervision, and thus decrease quality of instruction. The implication is not that there is no serious learning in large classes, but rather that understanding learning as an

interactive process requires policymakers to be sceptical of claims that burdens on teachers can be increased without affecting the quality of learning.

Conversely, some studies from a developed world perspective argue that there is no relationship between either teacher-pupil ratio or class size and performance. These include studies by Izum, Hanushek and Darling-Hammond. Between 1950 and 1995 in most states in the US, teacher-pupil-ratios fell by 35%, but students' performance indicators such as assessment scores have not increased (Izum, 1998). Izum shows that in Tennessee, a class size reduction experiment showed that reducing class size helped students in kindergarten, but did not have a beneficial effect on overall students' performance in secondary schools.

Hanushek further argues in Betts (1999) that studies show little proof that teacher-student ratio is positively related to students' performance. He reports that of over 200 estimates in the

> ... literature on the impact of the teacher-pupil ratio, only fifteen showed a positive significant impact on students' performance compared to thirteen that showed a negative and significant link (Betts 1999:1).

In a later study, Hanushek (2004) surveyed 277 studies that were attempting to correlate class size and achievement. He concludes that there is little reason to believe that small class sizes systematically yield higher student achievement. He argues that other studies carried out in Europe to examine the relationship between students' performance and teacher-pupil ratio, using six international test scores in maths and science, concurred with this conclusion.

Hanushek's studies produce consistent results in that, even in his earlier studies, he maintains that the cost associated with smaller classes far exceeds the benefits of having such classes. He argues that research findings indicate that cutting class sizes is extraordinarily expensive and very inefficient. Having scrutinised about 300 statistical investigations of the

relationship between class size and students' performance, he insists that there is no reason to expect learners' performance to improve as a consequence of lowering class size. He argues that teacher quality has been shown to have a much greater impact on students' achievement than does a reduction of students per class per teacher.

Hanushek's studies, with conclusions in favour of increasing class sizes rather than reducing them, are influenced by cost-effectiveness concerns. Probably, in a cost-effectiveness approach, the relationship between these two variables diminishes. Also Hanushek's studies are carried out in the developed world where class sizes are relatively small; increasing them may not affect academic performance as negatively as would be the case where the initial class sizes are larger.

Darling-Hammond (2001) asserts that research studies carried out in California found that class size is a less powerful predictor of students' achievement than other predictors such as teachers' qualifications. She argues that the impact of reducing class size does not bring as great improvement to learners' outcomes as does increased teacher education.

Within the same cost-effectiveness approach, but in a developing countries context, the International Institute for Educational Planning (IIEP) (n.d) notes that out of 23 countries listed as having a student-teacher ratio of above 40 in 1997, nineteen were in Sub-Saharan Africa. The organisation shows that there is still little research evidence that can conclusively prove that lowering the ratio of teachers to students is a cost-effective measure to increase quality.

Studies from the developing world suggest that a reduction in class size increases learners' academic performance, while those from the developing world oppose this view. It is worth noting that a large class size in a developed country may be the smallest class size in a developing country. Therefore, research studies on class size need to be contextually understood and analysed. The reduction of class sizes may be more effective where class

sizes are larger, as it is the case in Lesotho where teacher pupil ratios may reach 1:80 (see appendix 4) than where classes are already relatively small.

2.3 Learners' performance and in-service teacher training

This section reviews the published evidence on the relationship between in-service teacher training and academic achievement of students. A number of studies done in the last few decades suggest that in-service teacher training has a positive effect on learners' performance. However, most of these studies focus on in-service teacher training in relation to teacher professionalism and not in relation to learners' academic results. The effects of in-service teacher training on students' academic performance are not explicitly argued, but are rather implied.

In-service training for teachers guarantees quality standards in schools in the midst of constant and dynamic changes in quality requirements. A UNESCO report notes that in-service training is the key to improving teachers' skills and confidence. It provides on the job training that enables teachers to become competent and thus positively affects learners' performance UNESCO (2000).

The IIEP (n.d) agrees that in-service training is necessary to ensure that teachers' skills and capabilities continue to meet the changing requirements placed upon them. The IIEP (n.d) adds that in-service training, unlike pre-employment training, can affect all practising teachers, and thus has a wider and more immediate impact on the effectiveness of the teaching-learning situation.

In the same vein, Koster-Bunselmeyer (1998) argues that in-service training for teachers is the most important means of assuring quality standards and improving learners' performance in schools. She argues that, during recent decades, systematic in-service teacher training has changed from just imparting additional knowledge to being more reflective of theoretical and effective teaching methods that will enhance educational quality to a high degree. In-service and or workshop training enhances skills acquisition for teachers. Through in-service training,

> teachers gain understanding, see demonstrations of the teaching strategies they wish to acquire and have the opportunity to practice them in a non-threatening environment (West 1996:19).

The studies outlined above focus on the influence of in-service teacher training on teachers' professionalism. I do however believe that if in-service teacher training in general improves teacher quality and professionalism, such benefits may cascade into the classroom, and provide the impetus for learners' academic achievement.

2. 4 Learners' performance and teachers' qualifications

Several studies have been carried out to examine the causal relationship between academic achievement and teachers' qualifications. This issue is significantly debated in both the developed and developing worlds.

Hanushek developed an in-depth econometric analysis that compares teacher qualifications with other factors associated with students' performance. He argues that teachers' qualifications do affect learners' performance. In an academic year, a student with an average academic capability who is taught by a qualified teacher can progress faster than a better student who has been taught by an unqualified teacher. Hanushek in his study links teacher qualifications with teacher quality in that qualified teachers know their subject matter and they involve their students in the educational process. Teacher quality has been shown to be extraordinarily important for students' achievement in both developed and developing countries, and the econometric studies which support such results indicate that this factor dominates other factors associated with learners' performance (Hanushek, 1994). Later, at the end of the nineties, Hanushek continued to affirm teacher qualifications as the prime determinant of academic achievement. He argues in Betts (1999) that 35 out of 63 studies conducted in developing countries reported the positive effect of teachers' education on students' performance.

From a USA perspective, Darling-Hammond (2001) concurs. She reviews research on what makes a difference in students' academic performance and

asserts that the results of those studies lend credence to the conclusion that the single most important determinant of what most students learn is what their teachers know. She goes on to argue that, of all the factors that affect students' performance in California, research indicates that teachers' qualifications far outstrip other factors such as class size. In support of these arguments, she points to poor patterns of learner academic achievement in the inner cities of California where needy students are taught by the lowest qualified and non-qualified teachers, and good performance in the suburbs where the best qualified teachers are teaching the least needy students. Furthermore, in most minority schools and in inner city schools, few maths and science teachers are licensed and have a degree in the field they are teaching. This places children served by these teachers at a significant disadvantage. She concludes: 'Teacher preparedness and certification are by far the strongest correlates of the students' achievement' (Darling-Hammond 2001:3). According to Darling-Hammond (2000), some USA states (such as Connecticut and North Carolina) that have the highest proportion of qualified teachers and never hire uncertified teachers have good results, which rank with the top performing countries. Darling-Hammond suggests therefore that for policy, governments in the developed and developing world have to invest in teachers' learning so as to improve students' learning.

However, a growing body of research argues that there is no significant relationship between teachers' qualifications and learners' performance. A study that investigated the effects of teacher certification on students' achievement in USA concluded that there is no significant difference in the academic performance of maths and science students whose teachers have standard licences and students of teachers who have only emergency licences. It emphasised that maths and science students who are taught by teachers with emergency licences do no worse than the other group (Goldhaber and Brewer, 2000). To reach their conclusion, Goldhaber and Brewer analysed teachers' qualifications within the American context where teachers are awarded Advanced Licences, Substandard Licences, Standard Licences, Probationary Licences and Emergency Licences for both content knowledge and professional knowledge. These results show that the standard

certificate is not an important factor to determine good learners' performance as compared to the emergency certificate.

A statistical study conducted in Ghana on school inputs and learners' performance concludes that teacher education does not bear significant relation to students' gains in the test scores (Betts, 1999). This indicates that even in the developing world, there seems to be supporting evidence for the contention that teachers' qualifications are not the impetus for the academic success of students.

Still on the issue of the influence of teacher qualifications on learners' performance, a recent research study in the USA found that teacher qualifications are not as highly correlated with learners' performance as is teacher quality (Rice, 2003). Unlike Hanushek, Rice in his study does not measure teacher quality in terms of specific qualifications, but in terms of skills and knowledge, being active and hardworking, as well as being innovative and capable. Rice concludes that teachers' qualifications or certification does not have as strong an impact on learners' performance as does teachers' dedication to work.

Arguments regarding the impact of teacher qualifications on learners' academic achievement invite questions concerning the content of such qualifications. However the central argument here is that when a school, a district, a region or a country has teachers who know what they are doing, the learners examination results will improve. As much as most of the reviewed literature asserts that teacher qualifications improve learners achievement, I believe that teacher education does not function independently; its value depends on content learnt from the tertiary institution and on teacher motivation.

2.5 Learners' performance and instructional facilities and materials

A number of studies focus on material resources available within the teaching-learning situation. While such resources can include facilities and equipment, most studies place primary emphasis on textbooks as this study will also do.

Learners' achievement has also been related to the availability of quality materials. A number of studies over time suggests that instructional materials have a positive influence on learners' performance. Strong research evidence supporting this argument comes mostly from developing countries although as early as 1988 the World Bank found that availability of instructional materials also positively influence academic achievement even in developed countries.

Most reviewed studies on students' educational materials used in schools or in the classroom put more emphasis on schoolbooks and textbooks, but these studies also consider facilities. In Sub-Saharan Africa, South Asia and the Arab world, primary and lower secondary buildings are often without water and sanitary facilities. Instructional materials for use by the teacher, and textbooks and exercise books as well as library holdings for students are inadequate. In Harbison and Hanushek's words: 'The result is students who make little progress through schools' (1992:190). Learning resources are effective instruments for enhancing educational performance among learners, and their availability is therefore regarded as being an important determinant of achievement.

Moreover, Hanushek in Betts (1999) goes on to argue that out of 34 studies conducted in developing countries on 'school instructional materials', 22 demonstrate a significant link between school or classroom facilities with learners' academic achievement.

In support of this position, Panda (n.d) show that a study conducted in the state of Orissa on the effect of state interventions on pupils' achievement concluded that a supply of free textbooks has a positive impact on pupils' achievement, especially in mathematics and languages. Similarly, studies of Ugandan schools identified the availability of textbooks and variations in

schools' physical facilities as having a significant influence on students' achievement. The same conclusions are drawn concerning the significance of availability of textbooks in relation to learners' achievement from studies in Kenya, Nicaragua, Indonesia and Thailand (Marope, 1996). Research found that in Botswana, schools with sufficient physical facilities such as desks, libraries and reading materials significantly outperformed the less endowed schools (Marope, 1996).

UNESCO (2000) recognises that there is a link between learning support materials and academic success. The organisation reports that many primary and secondary schools in developing countries remain pitifully under-resourced. In a UNESCO-UNICEF survey of least developed countries, it was found that in most countries, one third or more of students gathered in classes that do not have learning support materials. The survey also discovered that in most countries, many students are in classrooms without even a suitable chalk board, while in more than half of the countries, over 90% of students at primary and lower secondary schools do not have textbooks. The UNESCO report for the year 2000 concludes that in studies of factors that affect scholastic achievement, educational materials are often found to be one of the most influential factors.

The Programme for International Students Assessment (PISA) (2000) argues that students' use of resources is closely associated with their academic achievement. On the basis of the research review, PISA finds that academic performance is relatively high where students have access to school libraries, laboratories, computers, Internet connection, calculators, stationery and textbooks.

Furthermore, the Business Coalition for Education Reform (BCER) (2000) argues that schoolbooks influence the educational quality to a high degree. BCER (2000) shows that schoolbooks represent methodological and didactic levels of development and lead to changes that again serve to improve school quality.

Just like Marope (1996), UNESCO (2000), PISA (2000), and BCER (2000), Panda (n.d) also observes that the availability of instructional materials in developing countries has a consistent positive influence on learners' performance. He agrees that the level of infrastructure in schools increases students' achievement as one moves from schools with few facilities to schools with more facilities.

The World Bank Staff Working Paper (1988) argues that in a study conducted in twelve industrialised countries, it was evident that the availability of books appears to be a consistent factor in predicting academic achievement. The paper reports that the correlation between textbooks and academic achievement was more positive than the correlation between academic achievement and teacher training. According to *The World Bank Staff Working Paper* (1988) a textbook is a form of educational technology that has the capacity to deliver massive amounts of new information to the most remote schools. The paper argues that if content is not clearly understood, books can be studied again and again; if quickly understood, a learner can read ahead. According to the paper, this implies that, compared to other commonly measured characteristics such as teacher training, the availability of books appears to be consistently associated with higher achievement levels. Therefore as an instrument for effective learning they are reported to represent a reasonable and equitable choice because they are simple to purchase, distribute and maintain.

The above evidence suggests that the use of books produces learning gains, 'and this is more likely to occur as a result of a textbook investment than it is as a result of other educational interventions' (*The World Bank Staff Working Paper* 1988: 31).

Recent studies in developing countries, reviewed above, consistently show strong positive relationship between instructional materials and scholastic success of learners. Even early studies from developed countries resonate with this evidence from the developing world.

Villiamy in Marope (1996) adds to these arguments from a different perspective. He asserts that studies in Papua New Guinea find that academic performance does not solely depend on school material inputs. He argues that non-material characteristics such as teacher morale have a positive impact on achievement. He points out that a study of Indian pupils found that, as predictors of achievement, socio-economic status and other non-school factors were seven times more powerful than school factors. Vulliamy in Marope (1996) further argues that the impact of the availability of a library and textbooks in a school depends on students' use of these resources. *The World Bank Staff Working Paper* (1988) cites that access to and use of reading materials is closely associated with socio-economic status.

In the burgeoning literature on learning support materials there is strong support for the argument that the availability of educational materials used in the teaching and learning process contributes a value added increment to learners' success. However, some studies found that the availability of schoolbooks or textbooks in the classroom is contingent on the actual use of such learning materials.

2.6 Learners' performance and homework

The research reviewed above relates to factors that are classroom centred, in that they look into what is taking place in the classroom and what kinds of teachers are in the classroom. But several research studies found that learners' performance is also connected to homework. Pronounced evidence from recent studies conducted in developed countries suggests that homework affects learners' performance positively. But early studies from developing country contextualised this conclusion with reference to the socio-economic status of the learner's family.

From the perspective of developed countries, Cooper (1994) argues that research on homework indicates that it has positive effects on learning. He points out that homework creates better retention of factual knowledge of the materials it covers and improves critical thinking and concept formation. Less directly, homework can improve students' study skills and attitudes towards

school. Learning takes place outside school and inside school when learners' are given homework.

Cooper cites several studies that have been conducted in the USA to answer the questions of whether homework enhances the students' performance. One of the studies involves comparing academic achievement of students who are given homework and students who are given no homework. 'Of the twenty studies, fourteen yielded results favouring homework whereas, six favoured no homework' (Cooper 1994:5). Most significant in these studies was the finding of a strong grade-level effect: for elementary students, in-class study proved superior to homework, but the high school students, who are in a class doing homework, outperformed the students in a no-homework class by 69 percent as measured by standardized grades. In junior secondary schools, the effect of homework is also positive but not to the same degree as in the upper secondary.

When comparing homework with in-class supervised study, the performance benefits of homework are generally higher. Once again there was a grade level effect. At the elementary level, the results did not favour homework. While in junior secondary school, homework was still superior 'and in high school, its advantage was greatest' (Cooper 1994:6).

Cooper (1994) reports that in about 50 national surveys in the US, researchers correlated the time students spent on homework with their test scores. Out of 50 correlations, 43 showed that students who did more homework perform better. Only seven correlations indicated the opposite. Cooper (1994) insists that a strong grade-level effect was present even here.

> For elementary students, the correlation between time spend on homework and achievement was almost zero; for students in middle grades, it was r = +. 07, and for high school students it was r = +. 25 (Cooper 1994:6).

Homework is a cost-effective instructional technique that has positive effects on achievement and can serve as a link between school and family.

Homework policies should be developed at the district, school and classroom levels.

> Districts should offer a clear and broad rationale for assigning homework, including why it is sometimes mandatory, as well as general guidelines of how that should be assigned. Schools need to provide more specific time requirements, coordinate assignments between classes, and describe the role of teachers and principals. Teachers should outline what they expect of students and why (Cooper 1994: 8).

In the same vein Walberg (1994) argues that research on the effects of instructional methods and teaching skills on student achievement shows that homework's effect is large. He also argues that the relationship between homework and achievement is large for high school students. He maintains that homework that requires learners to practice content already taught, and prepare for the next lesson, influences performance efficacy.

Some research studies from developing countries found that although homework correlates with academic performance, there are certain concerns that need to be taken into account when studying the effects of homework. Reviewing homework research studies from less developed countries, Anderson (1986) concludes that homework exacerbates existing social inequalities. He contends that students from lower socio-economic homes have more difficulties completing their homework than their peers from well-off families. Poorer students are often employed after school, or may not have homes where conditions are conducive to doing homework.

Another concern is that learners' scores in homework are subject to criticisms of lack of validity. This is attributed to parental involvement with their children's homework. Although well meant, parental involvement often becomes parental interference (Anderson, 1986). Anderson asserts that achievement based on homework is often invalidated by factors such as students copying from each other or getting extreme assistance rather than guidance at home.

In summary, most of the studies that found homework to be positively correlated with scholastic achievement were conducted in the developed world. Although studies in developing world support this claim, these studies also express concerns about the equity and validity of homework as an instructional method.

2.7 Learners' performance and school curriculum management and organisation

Various aspects relating to the organisation and management of the curriculum can impact on learner achievement. The issue that comes up most frequently in the literature is streaming which is discussed here. In this study however, other curriculum management issues which do not appear in the policy literature emerged, as will be discussed in chapter four.

Schools' curricula, the way subjects are managed in schools as well as the mode of assessment can also have an impact on scholastic success. From as early as 1970, researchers in both developed and developing countries studied organisation of schools' curricula in relation to learners' academic performance. However most of these studies relate school curriculum management and organisation to mixed ability and single ability grouping. This is a different issue from that which arises in this study, that is learner to subject distribution, which is not commonly discussed in the achievement literature.

Findings on the issue of ability grouping are not straightforward. There is debate on whether learning segregation according to academic capability influences learners' performance.

Duffield et al (2000) argue that the organisation of school curriculum according to learners' academic ability influences performance positively in both developed and developing countries. He argues that students who are assigned to the top streams are more challenged and this improves their examination results even more. Learners are learning at the same pace and teachers are able to use relevant teaching techniques (Duffield et al, 2000).

In an interview based study on effects of school curriculum organisation on learners' performance, teachers in Wales argued that it is important for slow learners to be segregated from fast and average learners for the sake of their academic achievement (Lunn, 1970). These teachers argued that when slow learners are mixed with bright students, they experience emotional stress. The teachers insisted that teaching and learning is more efficient and easier for them and for the students when classes are organised in accordance with the academic capability of learners. In a mixed ability class, some teachers have the tendency to ask their bright students to teach their dull classmates. When these dull classmates realise that they are regarded as being dim, they feel inferior in class and demotivated to learn, and they become stagnated in low performance ranks.

However, some researchers question arguments favouring ability grouping. They argue that this type of organisation in some schools in the USA resulted in a disproportionate number of black minority children being placed in lower courses and hence disappointing achievement by these learners. Those students who are commonly referred to as low achievers work alone and spend more time reading from their textbooks, while the high achievers are assigned more experimental learning and challenging problems which are likely to have more than one right answer. Grossen (1996) sees this as the causal attribution of learners' failure.

While there are some gaps in the literature concerning organization of school curriculum and assessment, both the early and recent studies in developed and developing countries explicitly relate academic achievement to streaming. The majority of the studies from developed countries and a few from developing countries conclude that academic results are lower when the school curriculum is organised in such a way that students are not allocated to classes according to their intellectual capability. Only one study from a less developed country disagrees with this conclusion.

2.8 Learners' performance and examinations

Assessment is used as a yardstick to measure the effectiveness of any school curriculum and management organisation. Stakeholders in education view examinations as very influential in relation to how teachers teach and how learners learn in schools. The form of the examination may influence results.

A number of studies in the nineties reviewed examinations from various developed and developing countries. Most of these studies focus on topics such as examination systems, effects of examinations on the overall learners' performance and various kinds of examination bias.

In some African countries where the school-leaving examinations are still set by overseas examination boards such as the University of Cambridge Local Examination Syndicate (UCLES), (as is the case in Lesotho), students' performance in the examinations is regrettably not improving. Eckstein and Noah (1992) argue that examinations do not contribute significantly towards the maintenance of such countries' academic education.

Questions have been raised about the reliability of these examinations. A lack of reliability impacts on learners' performance in that it can pull or push their achievement (Ward, 1980). Eckstein and Noah (1992) support the argument that some examinations do not achieve uniformity of standards of measure and marking especially when there are many schools and moderators involved in such an examination, and this affects examination results. They suggest that in order to reduce inconsistencies in examination results, reliability must be achieved and learners should be assessed with consistency under similar conditions regardless of whether they are marked by single marker or moderator, or a group of them (Eckstein and Noah, 1992: Ward, 1980).

Riding and Butterfield (1990) argue that examination papers must have validity in order to enhance achievement. They indicate that a good question tests several skills from pupils. Unlike most examination papers, geography examination papers are argued to be rich in testing several skills in the form of

written, numerical and diagrammatic work. The conclusion made here is that examination questions, which test several skills from pupils, improve performance efficacy.

In addition, Riding and Butterfield (1990) argue that by setting a tight time limit for an examination paper, it is assured that some candidates do not finish and subsequently score low marks. They argue that these examinations measure learners' speed rather than other scholastic achievements.

> Examinations in mathematics, which consist only of timed written papers, cannot by their nature assess ability to understand practical and investigational work or ability to carry out work of an extended nature. They cannot assess skills of mental computation or ability to discuss mathematics nor, other than in very limited ways, qualities of perseverance and inventiveness. Work and qualities of this kind can only be assessed in the classroom and such assessment needs to be made over an extended period (Department of Education and Science in Riding and Butterfield 1990:8).

This conclusion is an example of how examination schemes can contribute to depreciated academic performance in certain subjects compared to the appreciated performance of other subjects.

2.9 Learners' performance and the use of English as a second language

Several studies from the last decade to the new millennium, within an African perspective, strongly emphasise that the use of English as a second language within the education and examination systems in Africa results in poor academic performance of learners.

Academic success in a majority of secondary schools in both developed and developing countries is partly determined by performance of students in the examinations that are not conducted in their mother tongue. In a study carried out in ten African countries where English is a second language, it was found that five use only English language in their examinations. Four use English in all papers except the local language. Only one country uses its local language as the main examining language. The secondary school leaving results of the

first two groups of countries are reported to be lower than the country where the medium of instruction is the local language. Eckstein and Noah (1992) conclude that teaching and examining in English, with students who rarely use that language outside school, and most of whom do not even know it well, has adverse effects on academic achievement.

On the basis of a research review, Eckstein and Noah (1992) insist strongly that the language of assessment poses many questions about testing. For example, it is not easy to determine the adequacy of achievement measured in the second language. They argue for example that it is not easy for a mathematics examiner to know if the scores of mathematics' students are a reflection of what students know in mathematics rather than what they understand of the English-based mathematics questions. Eckstein and Noah (1992) assert that a good test should measure knowledge in a particular subject area rather than understanding of the test language.

> If the language other than the mother tongue is the medium of the test, children with more access to language of the test will do better regardless of whether they know the subject matter better (Eckstein and Noah 1992:115).

Qunta (2002) also agrees that a problem for African pupils in mathematics and science is the medium of instruction used in these two subjects. She argues that for almost all pupils the major problem with these subjects is the manner in which they are presented to them. In her study on '*Medium of instruction and its effect on matriculation examinations results in the Western Cape*', October (2002) highlights that Xhosa speaking students have better performance on literacy tests conducted in their mother-tongue compared to their low performance in literacy tests conducted in second languages – English or Afrikaans. According to her causal-comparative analysis, it is evident that the majority of learners who are being taught the key subjects in their second language attain low test scores. She argues that

> ...learners in group 5 are compelled to write the rest of the matriculation examination syllabus in one of the second languages, as if it were their home language.... These learners cannot pass a

> language subject on second language level, how can they be expected to treat it as their first language for the rest of the curriculum? This is a recipe for failure (October 2002:56).

For the majority of students who are instructed and assessed in any language other than their mother tongue, education is a double-yoke. Macswan and Rolstad concede:

> While majority language children have the single objective of mastering academic content (maths, science, social sciences, reading and writing) in school, language minority children have **two** objectives which they must meet in order to be academically successful: Like majority children, they must master academic content: but unlike children in the majority, they must also learn the language of instruction at school (Macswan and Rolstad in October 2002:76).

October compares and analyses different levels of English proficiency with learners' academic performance. Her research study is driven by the hypothesis that African language speaking learners in the Western Cape tend to perform poorly in the matriculation examinations mostly because the medium of instruction used in schools is a second or third language to them. Based on her research findings, October (2002) concludes that there is a positive correlation between the language used as a medium of instruction and learners' achievement.

Arguing from a developed country point of view, Sharp indicates that note has to be made on the impact of use of the second language among immigrants in Midlands, whose Welsh is extremely limited and sketchy. 'Such a Welsh child has no adequate language for learning, and is certain to be severely handicapped in his school progress' (Sharp 1990: 84). He argues that in Welsh secondary schools, the use of English as medium of instruction in most subject areas is a barrier for the less-able pupils, and that if examination systems or even schools insist upon English language for the work of all students, many immigrants students in Wales will be condemned to failure and their teachers to frustration because of this failure.

In summary, research has shown the importance of school language policy with regard to learners' achievement. Moreover, supporting evidence proves that learners' academic achievement depends among other things on their language background. The use of English as a language of instruction is criticised as a high validity threat to the performance of learners for whom it is the second or foreign language.

2.10 Conclusion

This chapter has been concerned with arguments in the literature regarding factors that are associated with students' performance in upper secondary education. It is proposed that there are nine factors, which to varying degrees, influence learners' performance, namely:

- Teachers' experience
- Class size
- In-service teacher training
- Teachers' qualifications
- Instructional facilities and materials
- Homework
- Organisation of school curriculum and examinations
- Use of English as a second language

The conclusions for each of these factors are is discussed below.

Studies suggest that teacher experience can contribute to learners' achievement. However, available literature argues that as a result of induction programmes and new pedagogical and didactic tools just acquired from tertiary institution, beginning teachers can also positively influence academic performance just like experienced teachers.

Available evidence suggests that in order for teacher qualifications to provide impetus for learners' academic success, it has to be complemented by teacher motivation and the background of content learnt from the tertiary institution.

Although reducing class size requires fiscal support that many governments in developing countries may not have, there is substantial evidence that, increased class size impacts negatively on scholastic achievement, especially in those countries or schools where one teacher teaches 80 students in a class. (See appendix 4).

With regard to in-service teacher training, the overall implication we are left with is that, such training improves teacher professionalism. The benefits of this will trickle down to the classroom level, and increase learners' performance.

There is strong support for the contention that availability of textbooks contributes to successful learning, however the effect of this availability is contingent on utilisation of these books.

I concur with evidence from the literature which supports the contention that homework impacts positively on learners' performance. I however understand that from a developing world point of view, this impact is qualified by issues concerning equity and validity.

Students' academic achievement is also affected by the organisation of the school curriculum. The literature indicates that performance of students who have average and below average ability is affected among other things by the way they are grouped in classrooms.

Examinations are generally relied upon to assess the academic achievement of students although many criticisms are levelled against them. For instance, questions have been raised about the reliability, validity and timing of the examinations and the implications for learners' achievement.

Research suggests that another reason for poor performance, especially among African students is the medium of instruction used in their education and examination systems.

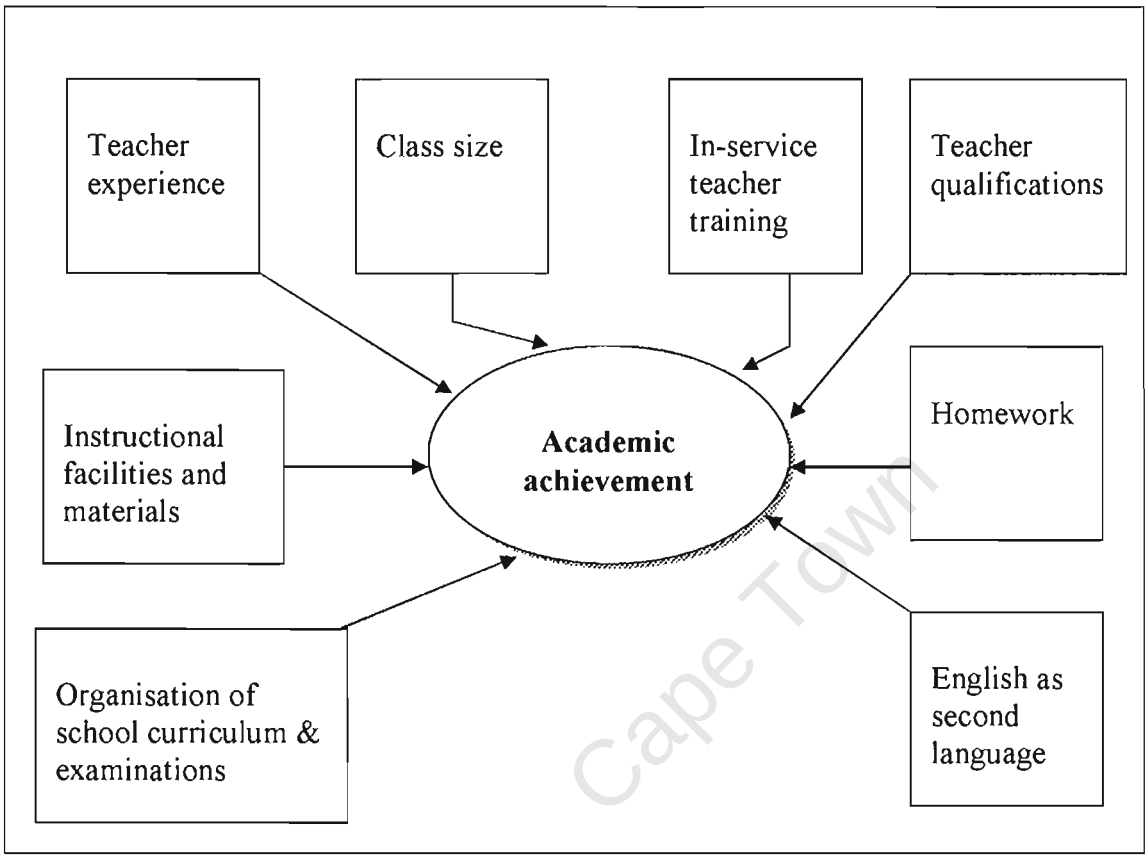
Since the factors discussed here have not previously been used to explain differences in performance between systems rather than within schools, their relevance to this focus will be tested in the study. It is possible that they will reveal more about differences between schools, districts or national systems than they do about differences within a system, and that different kinds of factors are more useful in explaining differences within a system.

Some of the reviewed studies have methodological shortcomings that cannot be ignored. For instance, types of data collection techniques used in some of the correlational studies are not clearly defined. Few studies indicate that they used correlational statistical testing to find the significance between learners' performance and determinants in debate. The degree to which a single methodology can find a strong relationship between variables or even lack of one is questionable. Moreover, some of the studies used sample sizes that are too small to support inferences for strong policy. However, this literature review intends to add new insights about the relationship between factors identified in this review and scholastic success in the context of Lesotho.

2.11 Conceptual framework

The conceptual framework of this study has been provided by the literature-derived determinants of academic achievement discussed in this chapter. This conceptual framework has been used as the guideline for collecting data for this dissertation. Figure 1 below illustrates this.

Figure 1: A conceptual framework for the study



CHAPTER 3: METHODOLOGY

3.1 Introduction

The nature of the research question enables the researcher to select the methodology and the approach that s/he can adopt for his/her study (Bassey, 1999). The research question for this dissertation relates to factors that are associated with low performance of learners in Development Studies (DS) at Cambridge Overseas School Certificate (COSC) level specifically in Form E, in the southern region of Lesotho when compared to relatively better performance in geography at the same level and grade.

This chapter describes the overall research methodology and design used in the study. It gives an account of the processes adopted for the development of instruments used for gathering data and describes the selection of schools and teachers who participated in the study. The pilot study undertaken at the initial stage of the research is also described in this chapter. The chapter then describes the instruments used. Also included in this chapter is an overview of the process of data collection and related analysis as well as claims generated by the study. A discussion of ethical considerations concludes the chapter.

3.2 RESEARCH DESIGN

3.2.1 Qualitative and quantitative approaches

This study adopts a multi-modal approach, including both qualitative and quantitative data collection and analysis strategies.

3.2.1.1 Qualitative approach

The qualitative approach to research is

> ... inquiry in which researchers collect data in face-to-face situations by interacting with selected persons in their settings (field research). Qualitative research describes and analyses people's individual and collective social actions, beliefs, thoughts and perceptions. The researcher interprets phenomena in terms of the meanings people bring to them (McMillan and Schumacher 2001:395).

Miles and Huberman (1999) argue that a qualitative approach assists researchers to see why something is the way it is. It provides insight, interpretative nuance and rich sensory details beyond the scope of other research models. It is flexible in that it allows for adjustment of the direction of inquiry based on going experiences during data collection (Best and Kahn, 1998).

The subjects for this study comprised 25 DS and geography teachers in the southern region of Lesotho. The researcher compiled an interview schedule whose questions were informed by factors argued in the literature to be the determinants of students' academic achievement. A list of documents that were going to be analysed was also compiled. All the data was analysed using qualitative research methods.

3.2.1.2 Quantitative approach

The quantitative approach involves numerical or statistical analysis such as correlation coefficients to interpret data. Because the research question for this project is partly about cause and effect relationships between variables, some of the data has been analysed through the use of Spearman's correlation coefficient. Here, the researcher identified the nature and strength of the influence that one variable has on another, particularly in terms of cause and effect as pointed out by Blalock (1982). P values of $< .05$ indicate that there is a significant relationship between the computed variables and they are written in numerical values in red ink.

3.2.2 Selection of schools

The study was conducted in Lesotho. Lesotho has three regions: the northern region, the southern region and the central region. This study has been specifically carried out in the southern region because there are more high schools in this region that have DS and or geography at COSC level than do high schools from the other two regions. The study focused only on the high schools that have DS and geography, or one of the two, in their COSC curricula.

There are only seven high schools that offer both DS and geography at COSC level in the southern region of Lesotho. All these schools participated in the study for the first layer (group A) of data collection as will be explained below. On the other hand, fifteen schools in the region do not have geography in their COSC curricula, but do have DS. Nine schools were selected out of these fifteen schools to participate in the study.

There are only three schools that offer geography at COSC but do not offer DS in the southern region of Lesotho. Two schools out of these three schools were included in the second layer of data collection (group B). The third school was left out due to administrative constraints within the school during the data collection exercise. The COSC geography teacher in this particular school argued that he was not a geography teacher; he was forced to teach the subject because the qualified teacher claimed to have too many administrative duties to perform as an Head of Department (HOD). The teacher asserted therefore that he did not feel competent to engage in any interviews regarding the subject. The researcher did not interview the HOD although she was reported to be a qualified COSC geography teacher because the original design of the study focuses on teachers who are actually working in the classroom with COSC (Form E) students.

In total, eighteen schools in the southern region of Lesotho were used for data collection for this dissertation.

3.2.3 Selection of teachers

Data was collected from Cambridge Overseas School Certificate (COSC) DS and geography teachers in the south of Lesotho. In the majority of high schools in this region, there are two DS teachers and two geography teachers on average at COSC level. The population of teachers in the study is 38. Data was collected from one Form E teacher from each pair of teachers in all the participating schools. This was due to the fact that the study is concerned with performance of students who sat for examinations that lead to the COSC certification, and those are the Form Es. This means that the selection of teachers was based on which teacher was going to take the DS and geography students respectively to the November 2004 COSC final examinations.

25 teachers participated in the study, including fourteen from seven schools which have both DS and geography at COSC, and nine teachers from schools which offer DS at COSC but do not offer geography. Two were geography teachers from schools that do not have DS at COSC level.

3.3 Piloting

A pilot study collects information regarding the sample prior to the actual research. According to Verma and Mallick (1999), a pilot study is helpful as in some cases researchers are inexperienced in administering research techniques. It helps detect problems that may arise during the major investigation. It also tests the validity of the instrument[s] to be used during the main study. If any ambiguities may be observed, a pilot study helps the researcher to be able to deal with them before hand (Bell, 1993).

In my pilot study, I had face-to-face interviews with one DS and one geography teacher in S.1 school in February 2004 so as to have a picture of what was likely to happen or not happen during the main data collection phase. The pilot study helped me to realise that the questions that relate to homework were ambiguous and I therefore rephrased them. Besides this one change, no major changes were made after the piloting phase. Since this

change was relatively minor, results from the pilot study were included in the final data set.

3.4 Data collection and analysis of data

The following data was collected for this study: interview data from 25 teachers in eighteen schools as well as notebooks for the five best performing students in schools from group A.

3.4.1 Semi structured - face to face interviews

According to Best and Kahn (1998) qualitative studies are enriched by in-depth and detailed descriptions of events and interviews. Interviews in general terms are research instruments that are used to acquire qualitative data. The study adopted semi-structured interviews whereby data was collected in a face-to-face interaction.

Semi-structured face-to-face interviews were conducted with 25 teachers from eighteen schools. This type of interview allows for greater in-depth discussion and flexibility (Cohen and Manion, 1994). Semi-structured interviews can be used to find out people's opinions, concerns and feelings on predetermined topics, facilitating a wider discussion. They permit the researcher to frame the discussion in advance, as Morse and Richards (2002) perceive. Here, the researcher is able to invite detailed complex answers through probing and prompting areas of concern that may have been difficult to ask directly. This strategy enables respondents to raise issues that the researcher may not have considered before. Moreover, respondents can help the interviewer to clear up ambiguities or explain abstract words. Furthermore, they accommodate unexpected responses that might bring issues that could be of greater significance than the outcomes of the original designs of the study.

Semi-structured interviews were used in this study to capture how teachers think about students' DS and geography academic performance. Although the original interview schedule ensured uniformity of questions or topics across participants, each particular interview was eventually slightly different from the

others due to the further probing elicited following the interviewees' responses.

The researcher ensured that appointments were made prior to interview dates. Interviewees (teachers) looked for a place within the school campus (such as the library, a vacant classroom or the geography laboratory) that was used for conducting the interviews. Teachers were familiar with these places, and this helped to make teachers comfortable. Although the introductory letter from the supervisor had been handed to the respective participants, the researcher introduced herself and explained the purpose of the study. After participants were assured of confidentiality, the interview sessions began.

Because some interviewees become uneasy when a tape-recorder is being used, introductory remarks pertaining to its use were made prior to the interview sessions. The need for the tape recorder was explained. All the interviews were audiotaped with the permission of the teachers (interviewees) as Mouton (2001:53) advises. These recordings were later transcribed verbatim and the resulting text analysed. In one case, where recording was not permitted, extensive notes were taken. The interviews were conducted in Sesotho and later translated into English after a verbatim transcribing procedure. Only two interviews were done in English because those two teachers do not speak Sotho.

3.4.2 Documentary data

Data was also collected from the following documents: Five DS notebooks and five geography workbooks of the best performing students in each school from group A (see table 2 above); DS and geography examination results of about 1018 students from all the eighteen case study schools; DS and geography examiners' reports, as well as DS and geography syllabi documents.

3.5 Analysis of data

3.5.1 Interview questions and analysis of interview data

The open-ended interview questions for DS and geography teachers were formulated primarily with regard to a conceptual framework based on identification of factors viewed as determinants of students' academic achievement as explained in chapter two. The interview schedule consisted of fifteen questions for both DS and geography teachers. This schedule was used as a guideline for the interview sessions and was adhered to so that at least all the items were covered similarly in all the interviews. The researcher probed further in situations where unusual and unclear ideas came up. Moreover, the researcher made conscious decisions about when to move to the next question.

> If questions are asked too quickly and the move to the next question is sudden, interviewees might have a feeling that their ideas are not properly acknowledged (Gunstone and White 1992: 86).

When teachers did not fully understand the question or when their responses were vague, a question was re-phrased and posed again. This was to ascertain that there was no misunderstanding between the researcher and the participants. The researcher said as little as possible and kept her comments to a minimum, thus letting respondents talk more. Refer to Appendix 1, which provides the full interview schedule.

Interviews were scheduled to take 30 to 40 minutes. However, sufficient time was allowed to enable participants to think through the question, formulate response[s] and ask questions for clarification (Sanders and Mokuku, 1994).

After the interview sessions were done, several documents such as notebooks and workbooks of the best performing students from group A schools, as well as examination results and examiners' reports were obtained as will be discussed below.

Data from interview transcriptions were analysed thematically by use of number coding. In the coding exercise, each school was given an identity (ID) number as its code. Responses were categorised according to themes derived from the reviewed literature as being determinants of academic achievement. These themes are; teachers' experience, class size, in-service teacher training, teachers' qualifications, instructional facilities and materials, homework, organisation of school curriculum and management as well as use of English as a second language. However, during analysis, the additional factors emerged, which are student to subject distribution and the nature of complexity of assessment task within DS and geography examinations. These factors and the ones derived from the literature formed the categories for analysis. The factors that emerged during analysis formed the principal constituent of this study because they appear to have more influence on learners' performance in this research than most themes suggested by the literature. Their analysis has been done in two layers relating to two groups of schools. The first layer is group A, while the second layer pertains to group B.

Group A

This is the group of seven schools that have both DS and geography in their COSC curricula. These schools are coded S.1 to S.7.

Table 2: Group A schools – offering both DS and geography

School	1	2	3	4	5	6	7
Code number	S.1	S.2	S.3	S.4	S.5	S.6	S.7

Group B

Group B schools provide the second layer of data. This group is made up of eleven schools. Nine of these schools offer DS at COSC but do not have geography in their COSC curricula. The last two schools coded S.17 and S.18 respectively in this report, do not offer DS at all at COSC, but they offer geography.

Table 3: Group B schools – offering either DS or geography

School	1	2	3	4	5	6	7	8	9	10	11
Code number	S.8	S.9	S.10	S.11	S.12	S.13	S.14	S.15	S.16	S.17	S.18

3.5.2 Documentary data and its analysis

Documentary analysis was also used in this study. A document is perceived as something that is written, but it can also include audio or visual images. Documents can be published (within the public domain) or unpublished (sometimes referred to as grey literature) (Hakim, 1982). They enable researchers to investigate the background and context of their specific problem[s] of interest. Documents are often used as supplementary data (Hakim, 1982).

Documentary analysis was used as complementary to the main method used (semi-structured interview) in this study. It provided an opportunity to triangulate information obtained from semi-structured interviews. Triangulation is 'the process of checking the findings from one source of data with those from another' (Vulliamy et al 1990:106). The method was a useful means of evaluating, for example, the extent to which DS and geography teachers practically engage their students in certain contents reported to be problematic in the teaching and learning of these two subjects (Hakim, 1982: Silverman, 2004).

Documents mentioned in 3.4.2 were obtained and analysed according to their specific purpose. For instance, the research project notebooks for DS as well as the map reading workbooks in geography were analysed because teachers identified research (in DS) and map work (in geography) as the most problematic topics which pull down learners' academic performance. Examination results and the examiners' reports were analysed in order to find out the overall performance of students in these two subjects. A discussion of the analysis is provided in subsequent chapters within the dissertation.

DS notebooks:

Notebooks were obtained for DS research projects, which had been described by teachers in interviews as the most problematic area in the teaching and learning of DS at COSC. These notebooks were analysed in order to review how successfully students completed a series of steps engaged in the research till the write up of the final draft. (See appendices 16, 17, 18, 19, 20 and 28).

Geography workbooks and notebooks:

The map reading workbooks are used as textbooks and notebooks for map work in all high schools that offer geography. These workbooks were also analysed in order to find out how successfully students completed class work and homework exercises within these workbooks. (See Appendix 21-25).

Teachers described map work as the section of work that learners find most difficult. The analysis intended to find out the degree of students' involvement, understanding and performance on this topic. This was done in order to find out how teachers prepare their students for map work examination in relation to their responses in the interview and the examination results of the students.

DS and geography examination results

A comparative analysis of COSC DS and geography 2003 examination results was done so as to compare students' academic performance in these two subjects in terms of the grades they obtained. Here, the analysis looked at the pass rate of students in terms of how many of them scored either grade A, B, C, D, E or U (fail) in DS and geography in all the participating schools.

DS and geography examiners' reports

General comments of DS and geography examiners' on the overall performance of students in these subjects were comparatively analysed. This analysis depicts students' strong and weak points in the subjects under study with regard to the examiners' views (see Appendix 30 and 32).

DS and geography Revised Syllabi

The DS and geography syllabi were analysed in order to relate different assessment requirements to learners' performance.

3.6 Correlation coefficients

Variables were initially derived from the list of factors emerging from the literature as determinants of learners' achievement. Additional variables were added, namely: Student to subject distribution and the nature of complexity of assessment task within the DS examination compared to the geography examination. These additional variables were explored through interviews and documentary analysis. The significance of variables was determined by relating them to learner results. Further, I comparatively analysed DS and geography results between schools and within schools in order to test the hypothesis that students perform better in geography than in DS in the southern region of Lesotho.

3.7 Claims generated by the study

The purpose of the study is to develop an explanation of why learners perform poorly in DS compared to their relatively better performance in geography. Thus the claims generated by the study will primarily be explanatory.

The study was conducted in one region in Lesotho (the southern region). Not all high schools in this region offer both the subjects under study. The claim is not made that the empirical results can be generalised to other schools or regions within or beyond Lesotho. However, the explanations generated here may inform further research elsewhere.

3.8 Ethical considerations

Participants in this study were human subjects who need to be given respect and recognition for their participation in the research. The researcher needs to be sensitive to their rights and welfare (Schumacher and McMillan, 1993). The University of Cape Town ethical guidelines for social researchers suggest that privacy and anonymity of participants have to be upheld in the research process. Students' notebooks and workbooks were analysed in this study.

Therefore ethical consideration before, during and after data collection was a crucial point. Specifically, there were two distinct ethical issues in this study, namely: respect and confidentiality.

With regard to the first ethical issue (respect), the researcher explained to teachers what was going to happen with the information they provided. Data was collected from them without any pressure.

The identities of participants and the names of participating schools have been withheld. The names of students, whose research notebooks and map reading workbooks were analysed, have also been kept anonymous. Participants were promised access to the results of the study if this was requested, and the researcher intends to keep this promise.

3.9 Summary

The chapter has outlined the research design used in the study. It describes the two methods of data collection employed: semi-structured interviews and documentary analysis. It justifies the selection of sites and subjects that participated in the research project.

As highlighted throughout the thesis, the primary aim of this study has been to identify factors associated with low learners' performance in DS compared to relatively better performance in geography. As a result, to analyse this comparison, the Spearman's correlation coefficient has been used to express the extent of the relationship between certain factors and learners' examination results.

CHAPTER 4: DATA PRESENTATION AND DISCUSSION

4.1 What emerged from analysed data

Data analysis results presented in this dissertation focus on factors that emerge from the literature as determinants of low learners' achievement, as well as on factors that emerged during the data collection exercise. These latter factors will be referred to as 'emerging themes.' They are student to subject distribution within schools and assessment format.

Correlation analysis results between low learners' achievement and some determinants argued by the literature are discovered to be not significant in this particular study. However, it emerged out during data analysis that there is significant correlation between learners' performance in development studies (DS) at Cambridge Overseas School Certificate (COSC) level in the southern region of Lesotho and the following factors: the nature of examination schema, the use of English as the second language and student to subject distribution.

The results presented in this chapter pertain to the purpose of the study. The purpose is to identify factors impacting on low performance in DS compared to relatively better performance in geography. However, most studies reviewed looked at learners' achievement in general, not specifically in DS. In this study I am comparing achievement in two subjects within the same schools, not achievement across all subjects in different schools.

4.2 Literature derived determinants and their degree of significance with regard to learners' performance

It is argued in the literature that low learners' performance is a result of several factors. This study looks at nine of these factors. They are:

- ❖ Teachers' experience
- ❖ Class size
- ❖ In-service teacher training
- ❖ Instructional facilities and materials
- ❖ Teachers' qualifications
- ❖ Homework
- ❖ Organisation of school curriculum and examinations
- ❖ Use of English as a second language

Spearman's correlation coefficient was used to calculate the degree of significance between some of these factors and learners' performance in DS and geography respectively.

4.2.1 Correlation between learners' performance and teachers' experience

The total numbers of years which participants had spent teaching DS and geography was correlated with students' examination results in each of these subjects. The results of this correlation analysis demonstrate that teachers' experience did not have any significant influence on learners' performance in DS or geography in this study. In other words, in each of these subjects, variations in learner results did not correlate with variations in teachers' experience. The correlation coefficient of DS teachers' experience and students' final examination results is P = 0.796 and the correlation coefficient between geography teachers' experience and learners' performance in geography is P = 0.718. Furthermore, on average, DS and geography teachers have similar levels of experience. In fact the average number of years of experience for DS teachers is slightly higher (at 10.75 years) than that of geography teachers (10 years). See Appendices 2 and 3, which are correlation tables concerning DS and geography teachers' experience and learners' 2003 final examination results.

4.2.2 Correlation between learners' performance and class size

Teacher-pupil ratio and examination results for DS and geography in participating schools were analysed so as to find out if they correlate. The results indicate that teacher-pupil ratio does not account for variations of results within either of these subjects. (See Appendices 4 and 5, which are correlation tables of DS and geography teacher-pupil ratio and learners' 2003 final examination results). The P values for both DS and geography correlations are 0.302 and 0.518 respectively. Moreover, on average, class sizes were larger in geography (29.5) than in DS (24.5).

4.2.3 Correlation between learners' performance and in-service teacher training

In-service teacher training does not account for variations in results within either DS or geography. The coefficient P values are 0.302 and 0.605 respectively. On average, DS and geography teachers had attended a similar number of in-service courses during 2003 that is two per teacher for DS and 1.8 per teacher for geography. (See Appendices 6 and 7, which are correlation tables of DS and geography teachers' in-service training schedule for 2003, and learners' DS and geography final examination results for 2003).

4.2.4 Correlation between learners' performance and teachers' qualifications

With the exception of two DS teachers who have university degrees that are not in the field of education, all the other DS and geography teachers' have the B Ed and some have B Ed plus PGDE and or M Ed. Their teaching subjects are related to their qualifications. This suggests that relatively low learners' examination results in DS are not caused by a lack of requisite academic qualifications or by relatively lower qualifications of DS teachers as compared to geography teachers. Appendices 8 and 9 compares both DS and geography teachers' qualifications and students' 2003 final examination results.

4.2.5 Correlation between learners' performance and instructional facilities and materials

The other factor that the literature suggests has an effect on learners' cognitive achievement is educational materials used in the teaching and learning process. In all the participating schools, textbooks are regarded as the most actually used instructional materials. However, analysis shows that the textbooks do not account for variations in learners' performance in either DS or geography. Refer to Appendices 10 and 11 for further details.

4.2.6 Correlation between learners' performance and homework

Fourteen out of sixteen DS teachers in both group A and B schools gave their students homework as Appendices 12 and 13 show. Four teachers out of fourteen gave their students homework once a week, while five said they did so once a month and another five said they did so twice a month. Examination results of these fourteen schools when compared with their respective frequencies of giving homework to their students do not show any consistent pattern to indicate a significant relationship between learners' performance and homework frequency. Performance in all the schools is either low or better (not good) regardless of the frequency of giving homework.

Out of these fourteen DS teachers who give their students homework, eight gave homework that covers a subtopic: while six gave that covers the whole topic. Homework is assigned when either the sub-topic or the topic is completed. There is no significant difference in results between schools where homework is routinely based on sub-topics and schools where homework is routinely based on whole topics.

As mentioned earlier, two DS teachers from two different schools pointed out that they never give their students homework. However their results are not significantly lower than those in the schools in which homework is given. These results concur with the conclusion that homework given to DS students does not explain their performance.

The same situation applies to geography. Only two out of nine geography teachers said that they give their students homework fortnightly at the end of the sub-topic. Six teachers said that they do not like homework because often students copy from each other or receive extensive assistance from parents and siblings at home. As a result, they never assign homework to their students. The ninth teacher said that he assign only reading assignments to his geography students in preparation for the next day's lesson. Geography learners' performance is consistently better than DS performance in all these schools despite the fact that geography students are sometimes not given homework.

4.3 Organisation of school curriculum

Examination schema

One of the determinants considered in the literature, to be associated with low learners' performance is the examinations. This was also a concern among the interviewees. All DS teachers felt that low performance in DS is a consequence of the question format for the examination. Before discussing teachers' perceptions on this particular theme, perhaps it may be important to look at the question formats or schemes, for DS and geography examinations.

4.3.1 Development Studies examination scheme

The Development Studies Revised Syllabus Document (1994) states that the DS examination consists of three papers, paper 1, paper 2 and paper 3. Paper 1, consists of two sections - Section A and Section B. Section A consists of short-answer questions testing the understanding of key concepts in the DS syllabus. Section B consists of "two structured data-response questions relating to the topics in the syllabus" (*DS Revised Syllabus* 1994:2). This paper carries 40% of the total marks for the subject. Candidates are expected to answer all questions from this paper.

Paper 2 carry 35% of the total marks for the subject. This paper has one compulsory question, which is on planning, implementation and evaluation of a group development project which students are expected to have

participated in during the course. Moreover the paper also contains seven structured essay questions from which candidates have to choose two.

The *Development Studies Revised Syllabus Document* (1994) states that paper 3 takes the form of a written report on a research project undertaken by students during the course. The DS syllabus document further explains that paper 3 carries 25% of the total marks for the subject. Teachers are expected to assess this report through use of the criteria provided by the University of Cambridge Local Examination Syndicate (UCLES), which is the examiner. Examiners in their reports argue that students' responses to this paper are poor, although it is reported that in 2003 the responses improved.

4.3.1.1 Development Studies paper 3 as a problematic examination

DS teachers have different ways of preparing their students for paper 3 (individual research projects). For instance, a DS teacher from S.1 said that he introduces his students to research in August when they are in Form D. This teacher pointed out that from August to November in Form D, he has one lesson per week in which he teaches and discusses with his students the steps in undertaking a research project. He stated that in November of the Form D year, his students formulate their research topics, and in January when they are in Form E they write the introduction to their research project. The subsequent chapters of the project follow this introduction. His students are expected to write the final draft in September. His 2004 DS students consult him for supervision and moderation every Friday from 1140 – 13h00. This happens until end of September when the final research reports are submitted to the Examination Council of Lesotho (ECOL).

The other DS teacher from S.3 introduces research among her COSC students in January when they are in Form E. She starts by explaining the word research to her students. Thereafter they discuss the research format and make notes on its headings and subheadings. Afterwards her students identify their research topics, which they present for her approval before they proceed. Her students carry out the research by first writing the introduction followed by the rest of the chapters as they are listed in COSC research

format. The students come to her for consultation daily whenever they have need to, from January to June when they go to collect data. After the data collection exercise, consultations start again almost daily from August to the end of September when they write the final research reports.

The DS teacher from S.4 uses a different approach from the other DS teachers. This teacher involves learners in a small research exercise to introduce and demonstrate the research process. Towards the end of Form D, she tells her students about a problem which exists in their school or town and thereafter she assign students to each ask a certain number of people whether that problem really exists. Students thereafter present their findings in class, and then she sends them again to the same people to ask them what they think are the causes of that problem. Again students present their findings in class. She then asks them what they think about those findings and then writes down their answers together with what they think could be the solutions. This teacher argued that she introduces the word research to her students only after this exercise.

The S.4 DS teacher explains that her next step is to make notes on the research format with her students with reference to the mini research projects they have undertaken. Afterwards, students formulate their research topics, which they are expected to briefly present in class. Classmates comment on each project with reference to their notes and the experience attained from the mini research projects. Thereafter her students start writing the research report from introduction to conclusion and come for consultations during a set weekly period and any other time when the teacher is free. This happens until the last day of September when they write their final research reports to be submitted as an examination.

This account indicates that DS teachers do not use similar approaches to prepare their students for paper 3 nor do they achieve similar results. It should be noted that S.4 is the only school in group A whose DS results are higher than those of geography. This is the school whose preparation for individual research projects among DS learners is different from those of teachers in

other participating schools. One can therefore conclude that the S.4 teacher's approach has positive impact on the DS final examination results in her school. The other DS teachers tend to teach the research theory as inert content. While the other teachers assess the research theory through use of tests, the S.4 teacher involves learners in a small research project. This approach proves to be more fruitful.

In June 2004, research notebooks were collected from schools in group A. These notebooks were of one student with the highest marks. At that time, most of the students were still writing their first chapter, which is the introduction. (See Appendices 16, 17, 18, and 19). The S.4 student, whose notebook was collected for the study was about to start data collection, which is part of chapter three according to the COSC research format. The S.4 student's notebook reflects a better understanding of the research process than do the other notebooks. Compared with the others, this student's research problem is well formulated and its objectives are clearly stated. (See Appendix 20). In S.1, S.3 and S.7, students did not properly spell out the procedural steps of the research process. Their research questions are not easily researchable as regard to data collection.

The S.6 student performed relatively well. She showed adherence to the research format and understanding of what she is expected to do (according to her teachers' remarks). (See appendix 18). But comparatively speaking, the S.4 student is still better this student. This fact supports the conclusion that the approach adopted by the S.4 teacher provides a more effective preparation than that of the other teachers.

The majority of teachers interviewed in this study complained about paper 3 and believe that it impacts negatively on the overall performance of DS.

4.3.2 Geography map work as an assessment format associated with poor achievement in geography

The Geography Revised Syllabus Document (1994) states that examination scheme consists of 2 papers, paper 1 and paper 2. Paper 1 is made up of 40

multiple-choice questions and students are expected to answer all of them. Questions 1 – 12 are on map reading, while questions 13 -24 are on physical geography and questions 25 – 40 are on human geography. Examiners and geography teachers complain that map reading pull down the overall performance in geography. Map reading carries 11% of the total marks for geography.

All the geography teachers explained that they do the map reading topic during the COSC course (Form D and E) for only one to two months. They do the topic every day during geography periods from the day they introduce it until they finish it after a month or two. In S.5, map work lessons take place on Saturdays from 0800 to 1100. The S.5 teacher does this because she wants to make sure that after she introduces a particular skill students have enough time to practice it.

Geography paper 2 comprises essay questions carrying 20 marks each. There are eleven questions and candidates are expected to answer any four. There is no compulsory question in this paper. Full marks are awarded for a well-labelled diagram especially in physical geography.

4.3.3 The research paper in Development Studies and map work paper in geography: A comparison

As with DS, the best students' map reading workbooks and notebooks were collected from the five participating schools in group A in June 2004. Four schools had completed this topic by then. In S.4, the topic had not yet been introduced to the students. The geography teacher here stated that she does the topic shortly before the examinations so that students go to the examinations while the topic is fresh in their memories.

There is a workbook that is relied upon for the teaching and learning of map reading. This workbook is used as a textbook because it has notes, which are followed by relevant exercises. This workbook illustrates how different skills in map work can be best developed at COSC level. It is a carefully structured support guide for geography teachers and students. Students are assigned a

variety of activities to practice several skills and they show competence in those exercises. (See Appendices 21, 22, 23, 24 and 25, which are map reading, workbooks and notebooks of the best performing students from S.1, S.3, S.5, S.6 and S.7).

Geography teachers think that map reading impacts negatively on learners' performance in geography at COSC level. But in comparison with the research component in DS, map work has a lesser influence on learners' performance than does the DS research task because of the following reasons:

- Map work weighs less than research to determine the overall marks for geography. It (map work) carries 11% for the total marks for geography, while research carries 25% for the total marks for DS.
- Map work has the carefully structured support guide which research does not have.
- The Topic of map work is taught for about one month to two months, while the teaching and supervision of research task takes nine to fourteen months. As a result, DS teachers complain about how time consuming and stressful the research task is for them and for the students.

Having reviewed the examination schemes of the two subjects in question, I will to look at the teachers' perceptions regarding these examination schemes in the next section.

4.3.4 Group A: Development Studies teachers' perceptions of development studies examination scheme

Paper 1

Out of seven teachers in group A, five consider paper 1 to be a good paper. Two teachers believe that data interpretation in paper 1 is too complex for students at COSC level. These two teachers are of the opinion that students do not perform well in paper 1 because they (the students) do not know how to interpret data presented in the examination paper. (See Appendix 26, which is 2003 DS paper 1 final examination).

Paper 2

Four DS teachers in group A strongly insisted that paper 2 is a difficult paper. They perceive questions in paper 2 to be too difficult for this level. These teachers declared that some of the questions in this paper are even difficult for them as teachers. One teacher bitterly commented, "It is like the DS examiner does not want our students to pass this subject". It is evident that this group of teachers have the impression that low learners' achievement in DS is caused by the difficulty of paper 2. (Refer to Appendix 27, which includes 2003 DS paper 2).

Furthermore, one teacher argued that the allocation of marks in paper 2 is ambiguous. He asserted that it is not clear how much candidates are expected to write for ten marks.

Paper 3

Three DS teachers declared that they struggle to teach and supervise research as all the DS teachers who hold B Ed degrees from National University of Lesotho (NUL) have not done research at university. These teachers had no experience of research prior to having to teach the research component. The four DS teachers who hold B A Ed degrees said that they had done research at university, but they complained that they are expected to give extensive assistance to the B Ed teachers from NUL who not done research. This means that the majority of COSC DS teachers do not know how to deal with the research component of research because they are not trained to do this. Consequently these teachers do not feel competent to prepare, teach and supervise research properly.

Four out of seven DS teachers in group A strongly argued that students have negative attitudes towards DS because they hate to do research (paper 3). This group of DS teachers showed that, like their students, they (teachers) also find paper 3 (research) very stressful. Two participants added that at the beginning of the course, students like DS and its research component, but as time goes and they see how much work they are expected to do, they hate

the subject and complain that there is too much work involved in it. These teachers complained that this component requires a lot of time. They also complained that the format is confusing. One teacher affirmed that she does not follow the prescribed format because it confuses her. Another teacher added that the fact that the format changes with every DS examiner confuses him even further. He argued that whenever they (DS teachers) get used to it (research format), it changes.

This indicates that DS teachers perceive learners' attitude towards research as a source of poor performance in DS. The fact that some DS teachers find the research time consuming and its proposed format confusing and subjective also informs the way DS teachers view the examination.

In addition two DS teachers in group A argued that there is no reading culture among students. These teachers insisted strongly that it is difficult for students to learn DS effectively because they do not want to read. One of these teachers adds

> ...their performance in paper 3 is bad because they do not like to read what other people have written about their research problems.

These three teachers argued that DS students are expected to read more for DS than for other subjects because DS as a subject needs students to have some background knowledge about development issues. Formally students at COSC level are required to do a scaled down literature review rather than a full scale literature review. The full scale literature review chapter has been taken out of the COSC research format. (Appendix 28 is the sample the COSC research format).

4.3.5 Group A: Geography teachers' perceptions of geography examination scheme

Paper 1

All seven geography teachers from seven different schools that offer both subjects regard map work as the most problematic area in the teaching and

learning of geography at COSC level. Five teachers observed that map work in paper 1 is too challenging and tricky for both teachers and students. One participant added that it requires lot of time in the examination. (See Appendix 29, which is a sample of 2003 geography paper 1 final examination). Furthermore, geography examiners argued in their reports that candidates did not perform well in map reading. Appendix 30 provides the 2003 geography examiners' report.

Paper 2

All the geography teachers viewed paper 2 as the best paper for students. They argued that it provides a wide choice of topics and students are free to answer questions from human geography if they have problems with physical geography, or vice versa. (See Appendix 31, which is 2003 geography paper 2 final examination).

4.3.6 Group B: Development studies teachers' perceptions of Development Studies examination scheme

Paper 1

Three out of nine DS teachers in group B perceived paper 1 to be complex and beyond the competence level of local candidates. They agreed that it is not easy for students to explain the interpretation of data rather than content knowledge.

Paper 2

While four of the nine teachers did not find paper 2 problematic, five complained that paper 2 is too difficult for the local candidates. One teacher stressed, "That paper is difficult so much that I personally cannot answer some of its questions ". Another teacher added,

> I think they have changed the examiner, the paper is getting complicated year after year, and the introductory statement written at the beginning of questions do not even correspond with the questions that follows it, and this mislead our students.

Paper 3

All nine DS teachers in group B viewed research as the most problematic topic for both teachers and students. Only one teacher pointed out that she personally did not have problems with the research component, however she declared that she experienced problems with students in this matter. All these participants had the perception that paper 3 accounts for low performance in DS.

Four said that they do not like the Cambridge research format because they find it confusing. One participant strongly argued that he does not like the research component in the DS syllabus because it is too subjective and he is not sure of how to approach it. This participant thought that the Cambridge research format is not a good format to use and he confessed that he did not use it.

Three teachers argued that the teachers themselves find this section difficult. One of them declared:

> Every time it is like it's my first time to teach and supervise it. Every thing about it is confusing. I do not understand a researchable and non-researchable topic.

DS teachers perceived paper 3 to be lot of work and time consuming. Five teachers viewed it as "stress and torture to teachers and students" as one asserted. These teachers put forward that the amount of guidance a teacher is expected to give students due to their poor English is too much. "It is really a hell lot of work to do ", so one of them said.

Furthermore, six respondents believe that students perform poorly in paper 3 because they (students) have negative attitude towards DS and research in particular. Three teachers added that students hate research so much that in schools where students are free to choose subjects they want to study at COSC level, very few students choose DS. These teachers said that they have to chase their students to come for research consultations. One teacher revealed that, at the beginning of the 2004 academic year, they had a

problem in their school whereby new COSC students (Form Ds) did not want to register for DS at all. She pointed out that these students out cried that they do not want to do research, and that therefore they would rather take geography instead of DS.

In their 2003 examination report, DS examiners commented that some candidates did not adhere to the required research format. (See Appendix 32, which is 2003 DS examiners' report).

4.3.7 Group B: Geography teachers' perceptions of geography examination scheme

Paper 1

Both geography teachers in group B, viewed map work as a difficult and complex topic for students and teachers, and one that negatively affects the performance of learners. One teacher commented that she does not understand map reading and she always has problems with calculating gradient.

Paper 2

As in group A, participants in group B found paper 2 very fair. They said that candidates perform well in it due to the wide choice of questions.

Summary

There are relatively difficult sections within both DS and geography. However, the degree of difficulty is much greater in the case of the research section within DS as compared to the map reading section within geography.

4.3.8 The use of English as a second language in Development Studies and geography: A comparison

English is the second official language in Lesotho. It is used as the medium of instruction from Standard 4 onwards (*Educational Policies in Lesotho*, 2003). The use of English as a second language in all academic spheres often impacts on learners' performance.

The use of English as a second language has a significant influence on learners' performance (Eckstein and Noah, 1992; October, 2002). DS teachers identified this phenomenon as a greater problem in the learning and teaching of DS than in geography.

Paper 1 for each of these two subjects focuses on interpretation of information or data, and includes map reading (geography) and reading of tables, charts and maps (DS). DS teachers highlighted that in DS paper 1, students are expected to express themselves clearly in English while paper 1 in geography does not requires this level of competence in English, because it is a multiple-choice question paper. Paper two for each of the two subjects requires content based responses. In the case of geography, students can choose questions that requires diagrammatic responses or questions that require short essay responses. Candidates are allocated full marks for drawing a well-labelled diagram especially in physical geography. This means that students do not necessarily have to produce texts such as paragraphs or short essays. All the three questions which candidates are expected to answer in DS paper 2 do require students to write extended texts. DS teachers said that DS paper 3 requires students to produce research report of about 3 500 to 6 000 words which needs to be written in proper English.

Six out seven DS teachers in group A complained that learners' poor English hampers good performance in all three DS examination papers, particularly in papers 2 and 3. Paper 3 requires students to be competent in the use of English so that they can report their research findings well. One teacher argued, "... they have poor English, as a result they are not able to express themselves clearly".

English as a second language and medium of instruction is an issue of concern across the schooling system in Lesotho. Due to the nature of the DS syllabus and assessment formats, DS learners are disadvantaged to a greater extent than are geography learners.

It is worthy at this point to look at students to subject distribution, which is a factor that emerged during data collection as another causal factor of low learners' performance in DS.

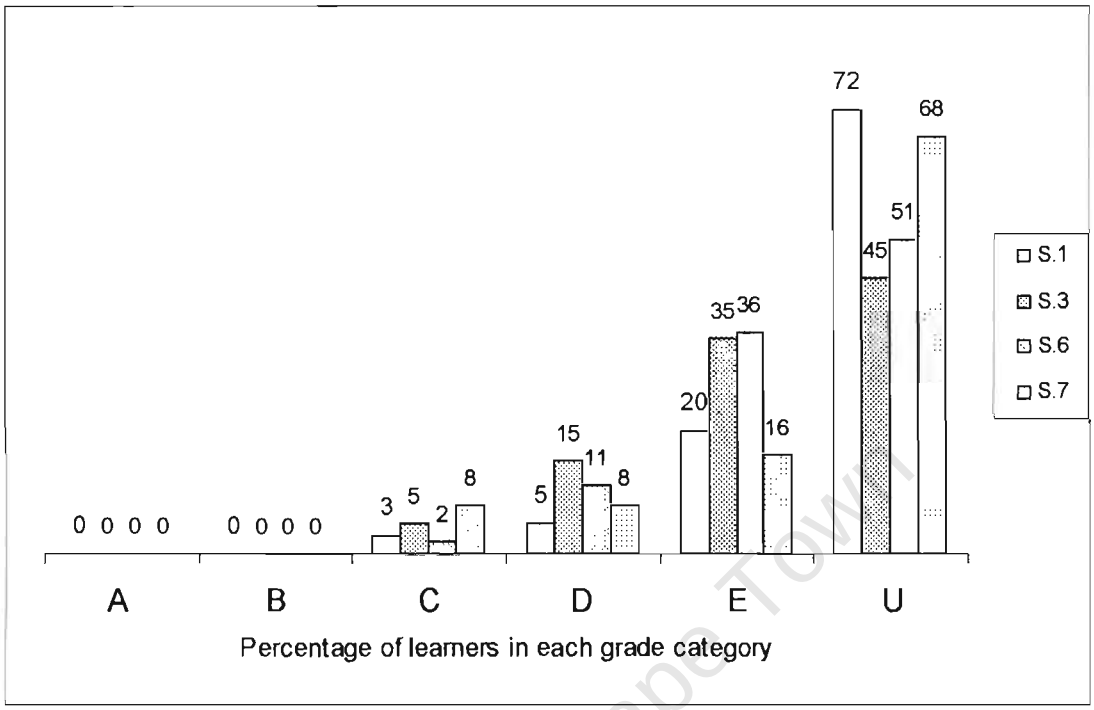
4.4 Students to subject distribution and streaming

Student to subject distribution refers to the system through which students are channelled into particular subject choices at schools.

4.4.1 Group A: Development Studies – Students to subject distribution

In four schools in group A coded S.1, S.3, S.6 and S.7, distribution of subjects to students was closed. Students who were not doing science were required to do DS, while students who were doing science were not given the option of doing DS according to teachers. At these four schools, the students who do not do science and are compelled to do DS are considered to be low achievers. In all these schools, the decision relating to which students do or do not do science is based on their results at the end of Form C. Thus only high achievers in the Form C science examination are permitted to do science at COSC level. DS results in their schools are not good. One of the teachers stated, "... it could be done better if it was not strictly done by slow learners". Figure 2 below shows DS results in these schools.

Figure 2: 2003 DS results in schools where DS is done by students who do not do science in group A

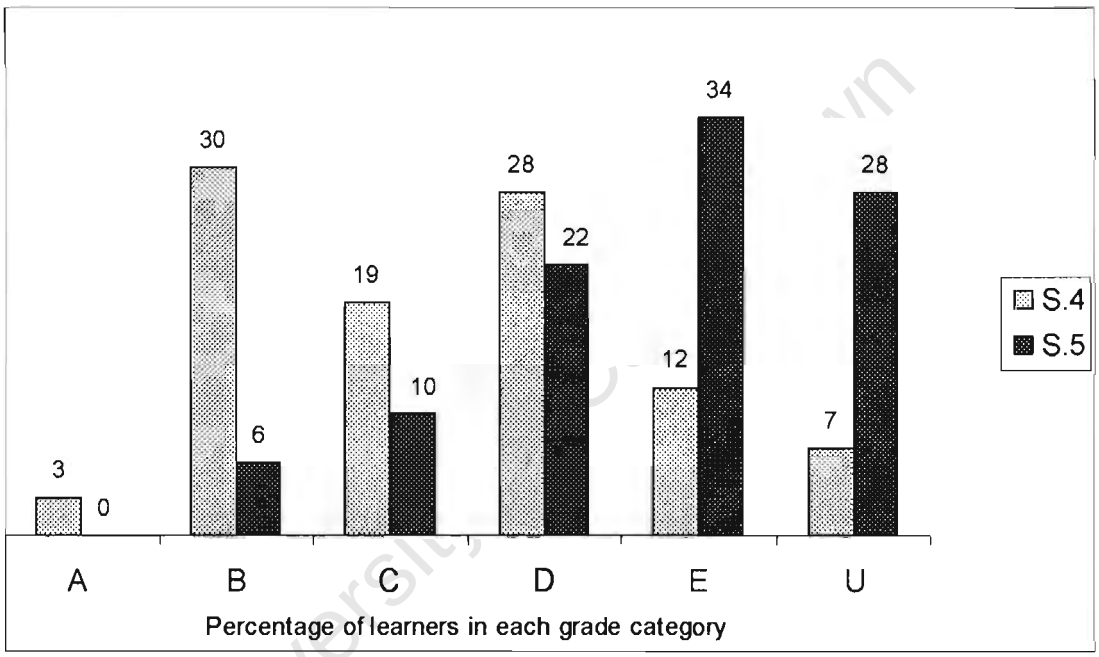


The grade distribution in 2003 in the figure 2 represents four schools in which DS is reserved for students who do not do science. No students achieved A and B grades in these schools, and few achieved a C grade. The majority failed and were therefore ungraded hence grade U. All their means are in grade U, which is fail. They are 72% for S.1, 45% for S.3, 51% for S.6 and 68% for S.7. One can therefore argue that as far as the above data is concerned, DS performance in these four schools could potentially be influenced by students to subject distribution although final conclusions will be made later through use of correlation analysis.

In S.3 the allocation of subjects alternates within different academic streams annually. In one year, students who do natural science also do DS, while in the next year; DS is done by students who do not do science. They introduced this system in their school because DS results had been continuously poor. With this new system, the results changed drastically from one year to next depending on which group of students sat for the final examination that year.

In two schools namely S.4 and S.5, DS was compulsory for all COSC students regardless of their other subject choices. DS is valued as a subject that informs students about matters in local, national and international affairs. Teachers at these schools felt that the DS component of research forms a good foundation for future tertiary learning; hence the subject is compulsory. Figure 3 displays the 2003 final examination results at these schools.

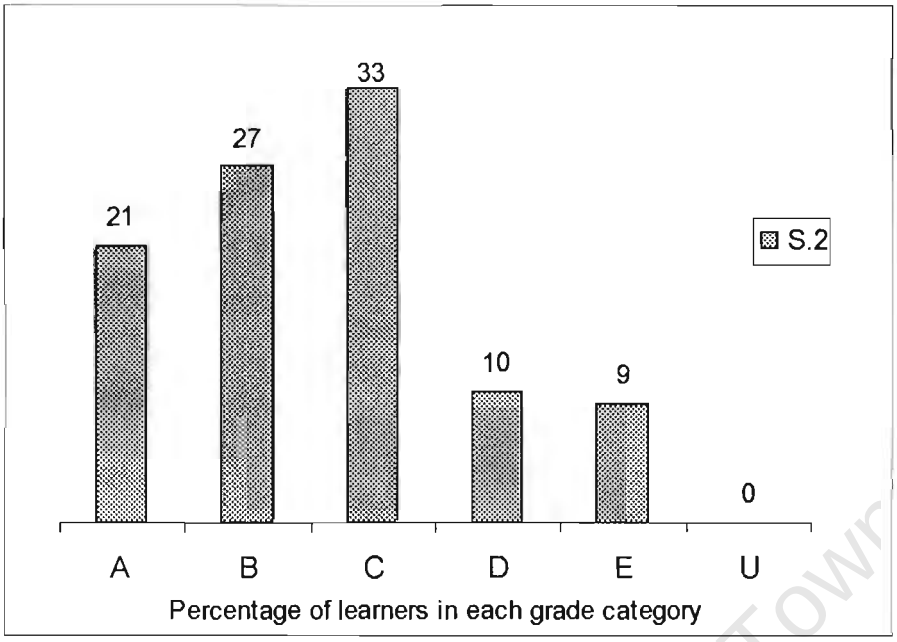
Figure 3: 2003 DS results in schools where all COSC students do DS in group A



DS results in these schools where all COSC students do the subject are better than the results in schools where only students who do not do science do DS, as shown in figure 2. The mean for S.4 is 30%, which is in grade B, while for S.5 is 34%, which is in grade E.

At only one of the seven schools (S.2), students themselves do decide on which subjects they want to study. Here DS students are made up of both science and non-science students. Their 2003 examination results are displayed below in figure 4.

Figure 4: DS results in schools where students volunteer to do DS in group A

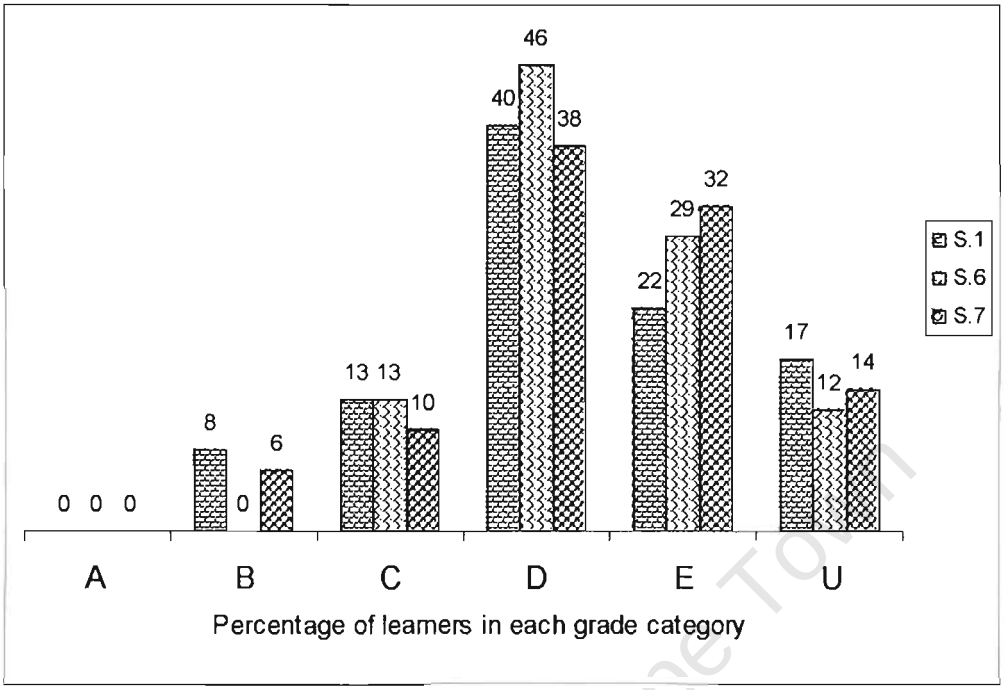


According to the above data, DS examination results are better in a school where student to subject distribution is open to students' choice, compared to the examination results in schools where the subject is done by non-science students or by all COSC students. The mean here, which is in grade C, is 33%. All students passed, and only 9% got grade E.

4.4.2 Geography – Students to subject distribution: Group A

As is the case with DS, the procedures for distribution of learners to geography as a subject at the COSC level are not homogeneous in the high schools of the southern region of Lesotho. In two of the seven schools in Group A, students who are doing natural sciences do geography and DS in alternate year. Figure 5 below shows their results. In other words, a cohort in one year would do science and geography while the cohort in the following year would do science and DS. Thus the students who are doing science would have to do one of these subjects, while students who are not doing science would have to do the other.

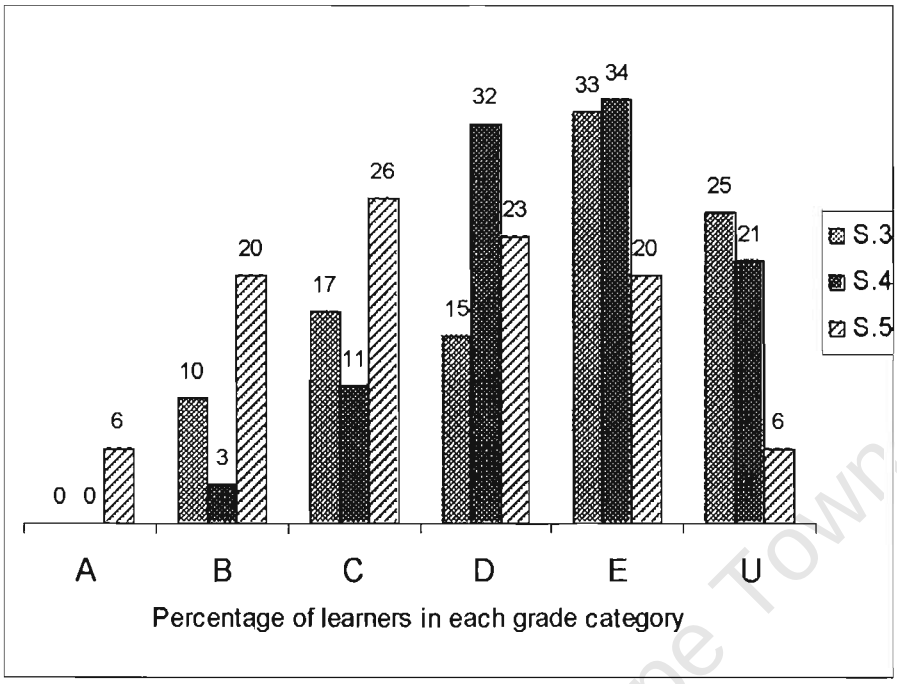
Figure 5: 2003 geography results in schools where it is done only by science Students in group A



Geography examination results in the above three schools are comparatively better than DS examination results in the same schools where DS is done by non-science students. Here the means for geography, which are all in grade D, are 40% for S.1, 46% for S.6 and 38% for S.7 as compared to the means for DS which are all in grade U, 72%, 68%, 51% and 45% as shown in figure 2. In other words, geography marks are higher than DS marks in schools where science students also do geography and non-science students do DS.

There are three schools in group A in which every student at the COSC does geography. Figure 6 shows their 2003 examination results.

Figure 6: 2003 geography results in schools where geography is done by all COSC students in group A

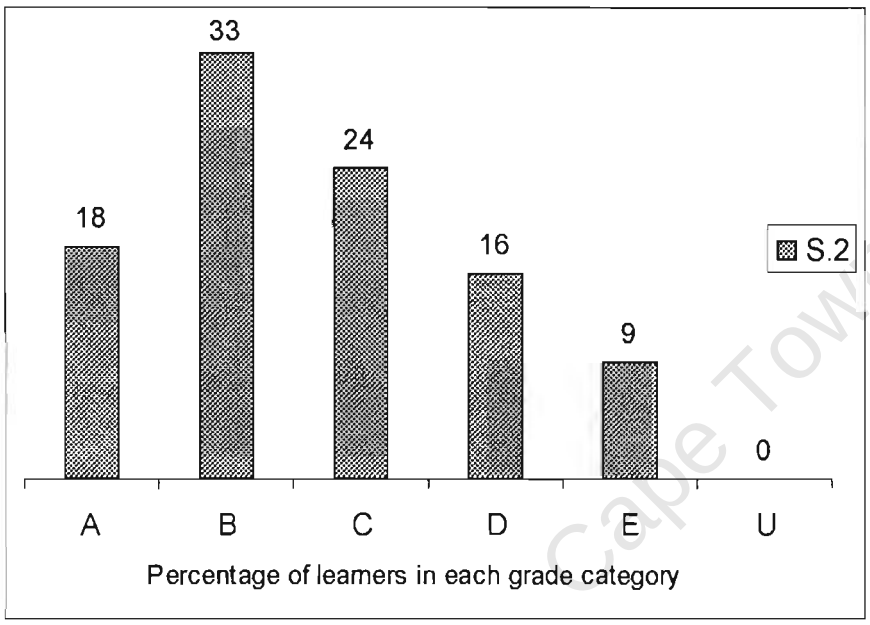


With the means all within pass grades, 33% E in S.3, 33% D in S.4 and 26% C in S.5 it is evident that geography results are better than DS results in S.3 and S.4. Refer to figures 2 and 3 for further comparative analysis. S.4 is an exceptional case, where DS examination results are relatively better than geography results. The DS teacher in this school is a 'research project marker'. She is more confident in her understanding of the requirements for the research component of the DS examination than are the other DS teachers in this study. A comparison of her best student's research notebook (Appendix 20) and other schools' best student research notebooks affirms that her student[s] are better than other students in carrying out the research projects. The research notebook of this student demonstrates that, unlike other students, this student had a better understanding of the process. As said earlier in 4.3.1.1 her research problem is well formulated and her objectives clearly stated.

This analysis suggests that the DS results are relatively low in schools where students who do not do science and are placed in what are considered to be low achieving streams do DS.

In S.2, subject distribution is open to students' choice. Individual students who wish to study geography at COSC level decide to do so on their own. Figure 7 shows 2003 geography performance S.2.

Figure 7: 2003 geography results in a school where subject selection is open in group A



The above columns show that like DS, geography results are higher where student to subject distribution is open to individual students' choice. The geography mean is 33%, which is in grade B, while in DS it is also 33% but in grade C. (See figure 4). Although both DS and geography examination results are relatively good in this school, geography results are generally slightly higher than DS results. This means that geography students perform better even where there is open choice of alternative subjects.

In conclusion, the correlation coefficient shows that there is a significant relationship between learners' performance in schools where DS is done by non-science students who are in the lower achieving streams and in schools where it is done by students who volunteer to do it. The results here are P = 0.004. Moreover, the P value for the correlation coefficient between DS results in schools where non-science students do DS and geography results in schools where all COSC students do geography is 0.026, which also shows

that the correlation is significant. These two correlation coefficient results indicate that the system of allocation of subjects in these schools accounts for variations between DS and geography of results in these schools.

The correlation coefficient between DS learners' performance in schools where non-science students do DS and in schools where all COSC learners do DS is 0.282. This implies that there is no significant difference in results between schools where DS is done by non-science students and in schools where all COSC students do it.

In addition, correlation coefficient between DS examination results in schools where all COSC students do DS and geography examination results in schools where all COSC students do geography is 0.192. These results indicate that distribution of subjects to students in these schools does not account for variations of results within either of these schools.

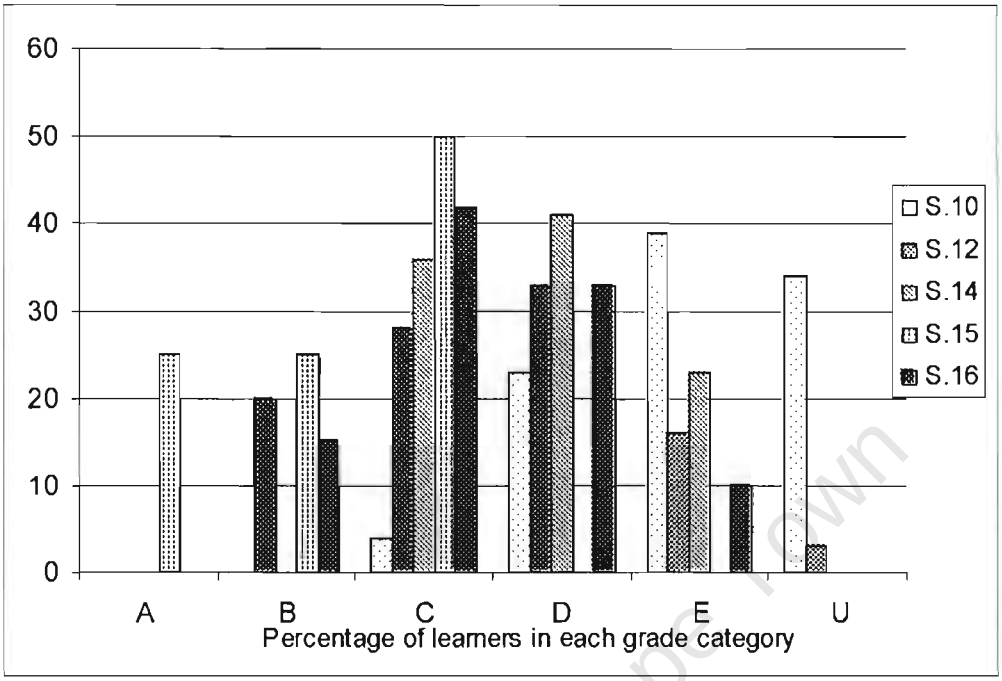
The above statistical correlations generally imply that grouping into science or non-science classes correlates significantly with results in both DS and geography.

4.4.3 Development Studies – Students to subject distribution: Group B

In this second layer of data, nine schools were used to collect data concerning DS. It is important to remember as noted earlier in chapter 3 that these schools do not have geography in their COSC curriculum.

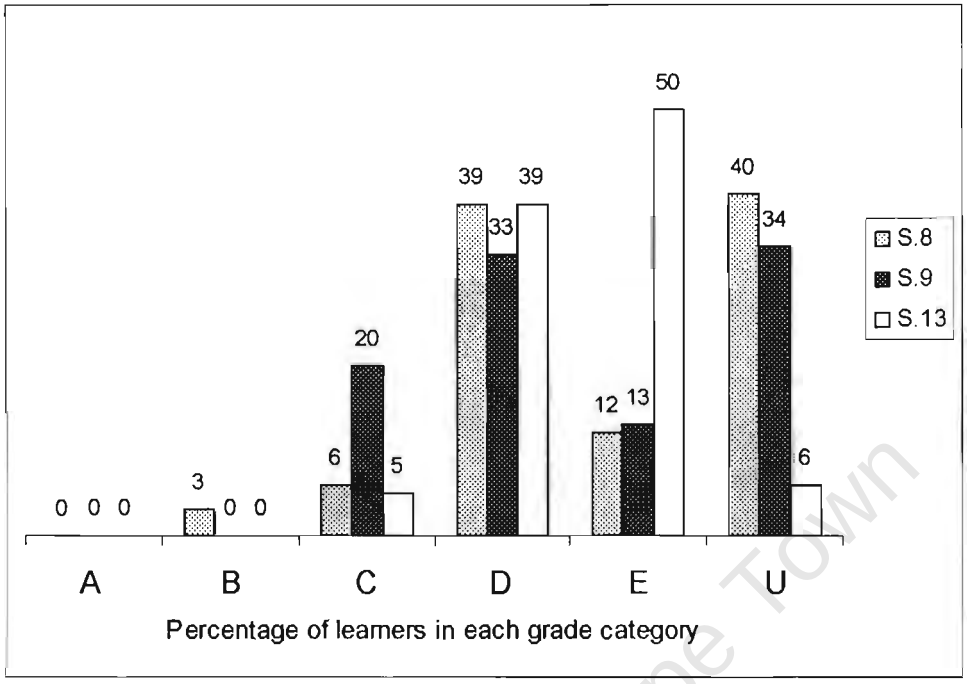
DS is not an optional curriculum in five out of these nine schools. Respondents in these five schools explained that all their COSC students are compelled to study DS. Figure 8 below shows DS examination results in these schools. Their mean scores range between grades C, D and E, not grade U (fail). It is evident therefore that even in group B, more DS students pass with grade A, B and C in schools where DS is done by all COSC students compared to schools where it is done only by students who are not good in science as will be seen later.

Figure 8: 2003 results in schools where DS is compulsory to all COSC students in group B



Among the same group of schools in layer two of data collection, three teachers expressed that in their respective schools, DS is a subject which is done only by low performing students who often are not good in science subjects. One respondent argued, "here in our school, slow learners are the ones who do DS and they always give us bad results". Figure 9 displays their results. Similarly another teacher from one of these three schools asserted, "DS is done by slow learners who hardly pass any subject, let alone the one that has component of research".

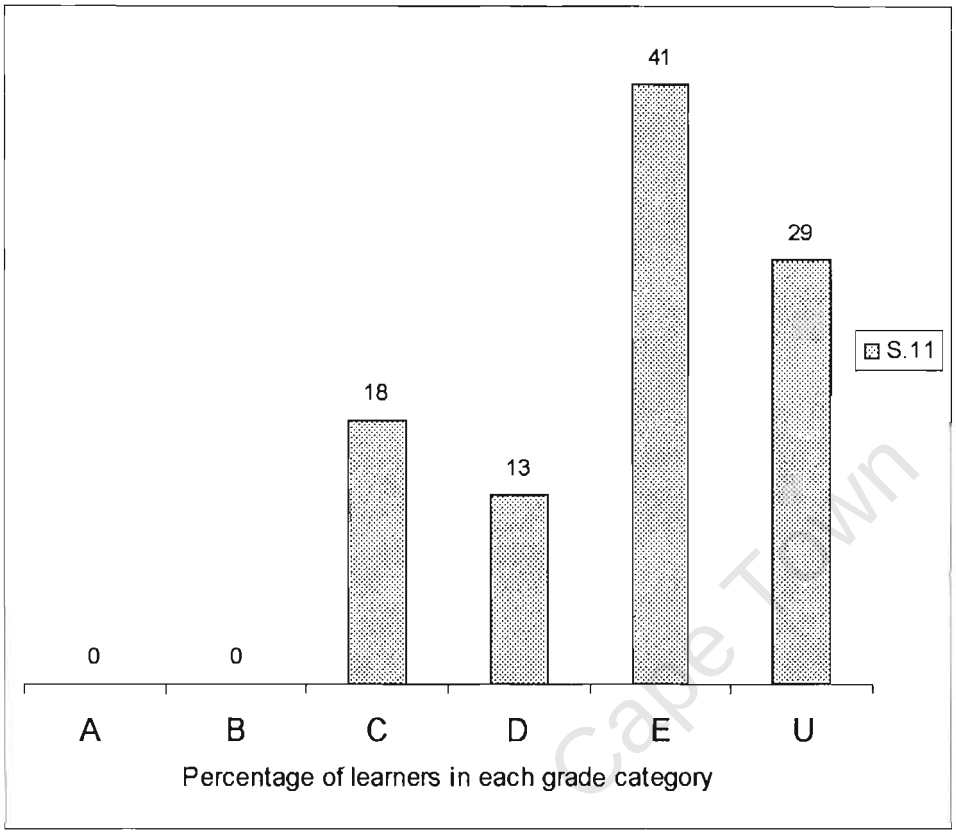
Figure 9: 2003 DS results in schools where DS is done by students who do not do science in group B



As said in the previous paragraph, DS performance is lower even in group B among schools where the subject is done by students who are in low performing classes. Two out of three schools which use this system in group B have the means of 40% and 33% in grade U respectively. The other school have 50% mean in grade E. However, the correlation coefficient between DS learners' performance in schools where DS is done by non-science students and DS learners' performance in schools where it is done by all students in group B is P = 0.294 which means that there is no significant relationship between DS results of these schools as it was the case in group A.

It is not in every school even in this group where distribution and selection of subjects at COSC is closed. In some schools students are granted freedom to choose subjects they want to study at COSC level. However these schools are scarce. Like in group A, there is only one school in group B where COSC students decide on subjects they wish to study. Figure 10 shows their results. Although learners' examination results in this school are not good, they are comparatively better than in the group of schools presented in figure 9. The mean here, which is in grade E, is 41%.

Figure 10: 2003 DS results in a school where students volunteer to do DS in group B



All in all, the above results show that seven schools out of sixteen (both group A and B) from which data on DS was collected, place the subject in the lower stream, (often of non-science students), which is reported to be of low achieving students. In another group of seven schools, DS teachers showed that the subject is compulsory in their schools. It is only in two schools out of sixteen schools where students who do DS decided to do so on their own.

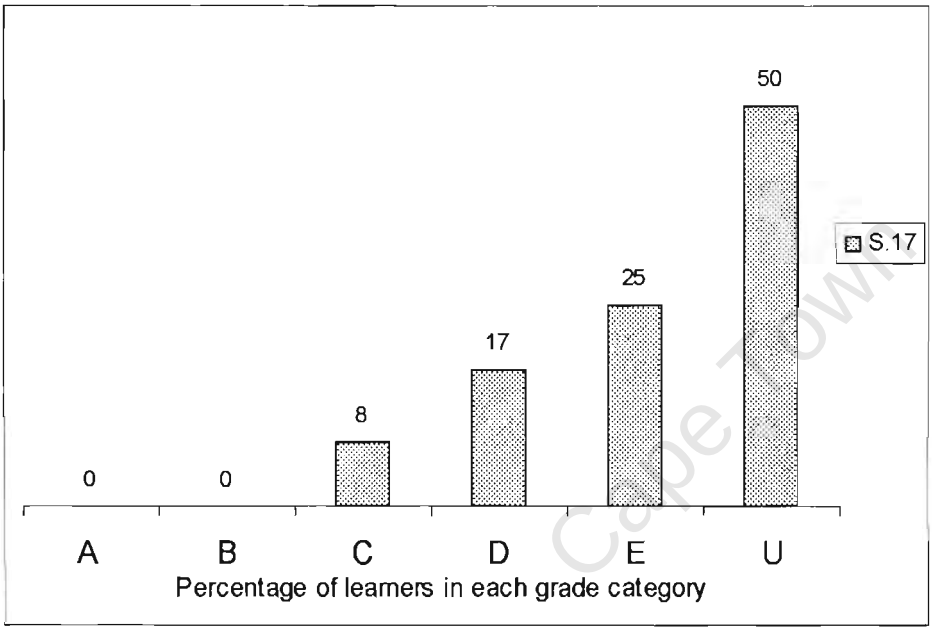
A comparative analysis of the results of these three groups of schools confirms that DS performance is persistently low in schools where students in a less capable stream strictly do the subject.

4.4.4 Group B: Geography – Students to subject distribution

There are only two schools that have geography in their COSC curriculum in group B. These schools do not have DS at COSC. One interviewee from S.17 pointed out that, at COSC level in her school, the subject is done only by

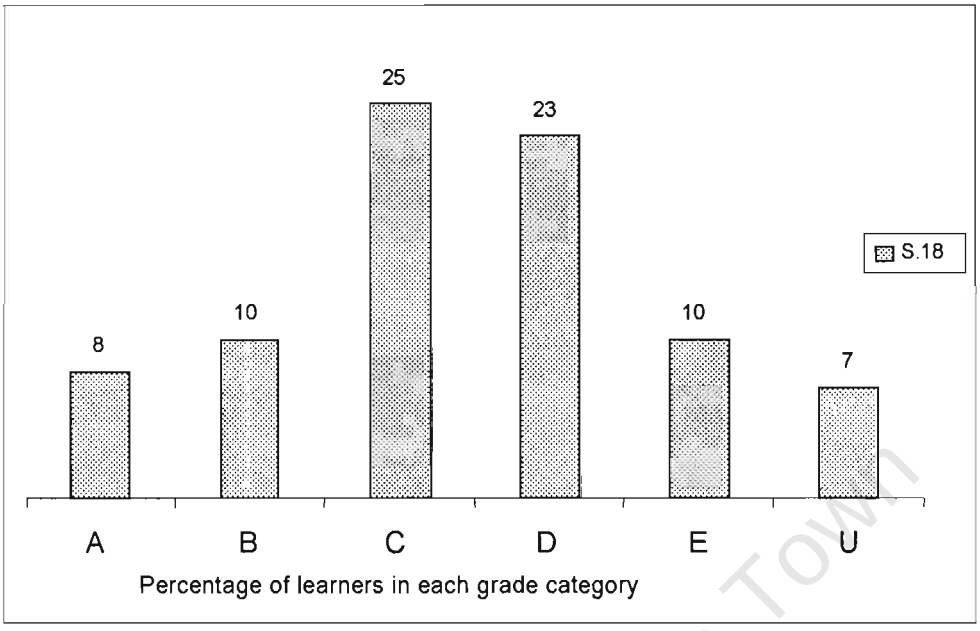
students who do science; while the second teacher from S.18 said that every COSC student in her school studies geography. Figure 11 and figure 12 display their 2003 geography results.

Figure 11: 2003 geography results in a school where geography is done only by students who do science in group B



However the above performance is low compared to the DS performance from other schools presented earlier in group B. This indicates that although science students in this school do geography, its examination results are not good. Note has to be made on the point that this school does not offer DS in its COSC curriculum.

Figure 12: 2003 geography results in a school where geography is done by all COSC students in group B



At S.18, geography results were relatively good with the mean of 25% in grade C and more As and Bs than Us as can be seen in figure 12. Geography results in S.18 are better overall, than DS results in any of the schools in this study.

In sum, geography was offered in nine schools in this study. In four out of these nine schools, only students who are in the better stream, and do science, did geography in 2003. In four schools, all COSC students did it. In one school, student volunteered to do it.

Generally speaking, geography results were better than DS results where science students did geography, and students who were not doing science did DS. Moreover, in schools where all COSC students did both geography and DS, geography examination results were still comparatively better. There were however two exceptions to this pattern (S.4 and S.17). In S.4 where both subjects are compulsory, DS results were better than geography results in 2003. This is due to the fact that the DS teacher in S.4 is a research marker and is confident in understanding the requirements for the research

component of the DS examination. In S.17, geography results are weak even though geography is linked to science.

4.5 Discussion

This section reviews the data presented in the previous sections of this chapter in a way that draws out the implications of this data for the question posed in the study. The results obtained from this study bring into perspective some new insights regarding factors that are associated with low learners' performance in DS. The first part of this discussion focuses on literature-derived influences on students' academic achievement, and the latter part focuses on the factors that emerged during data analysis.

4.5.1 Literature derived determinants of students' achievement

As previously highlighted in chapter four, seven out of nine factors identified in the literature do not have a significant correlation with differences in learner achievement within and between DS and geography in the schools in this study. These factors are teachers' experience, teacher pupil-ratios, in-service teacher training, teachers' qualifications, the availability of instructional materials, homework and teachers' gender. The results of this study show that these factors are not responsible for the disappointing DS performance as compared to geography performance in the southern region of Lesotho.

4.5.1.1 Teacher experience

As discussed in chapter four, it appears that teachers' experience does not have any consistent influence on learners' performance in either DS or geography in this study. The seven lowest performing schools have the DS teachers whose experience ranges between three and twenty-two years. However, the 2003 DS examination results in these schools are low. Thus teacher experience has a weak relationship with the DS examination results in all participating schools.

While geography results are generally better, this is also not associated with more years of teaching experience as compared to DS.

4.5.1.2 Class size

In chapter four, I showed that the correlation coefficient between teacher-pupil ratio or class size and learners' examination results for both DS and geography shows no significant relationship between these variables. With the exception of one school whose teacher-pupil ratio is 1:80, all the fifteen schools used for data collection on DS, have class sizes ranging from 9 to 33. In the majority of these schools, class sizes are 20 and 22, which is even below the proposed ratio of 1:30 at high school according to Lesotho's educational policy. The best performing school, S.2 has a teacher pupil ratio of 1:33, while S.1 and S.7, which have the worst overall pass rate of 28% and 32% respectively, have teacher-pupil ratios of 1:18 and 1:20 respectively. The S.1 and S.7 results are worse than those of S.8 whose teacher-pupil ratio is 1:80. The pass rate of S.8 is 61%. This suggests that class size does not determine how student perform in DS. Schools perform better or worse regardless of how many students they have in their classrooms. Although studies from the developed world suggest that class sizes need to be reduced, this may not be the most effective way of improving performance. On the basis of a research review, Hanushek (2004) agrees that there is no reason to expect learners' performance to increase as a result of class size reduction. He argues that reducing class size does not have any positive impact on academic performance.

While class sizes in geography on average are the same as in DS, performance in geography comparatively remains better than performance in DS. This implies that class size does not affect DS more than geography nor does class size accounts for differences in results within DS or within geography.

4.5.1.3 Teacher qualifications

Of the sixteen DS teachers in this study, fifteen have B Eds. Three teachers from S.11 and S.13 have B Eds and Postgraduate Diplomas in Education (PGDE) while two teachers from S.4 and S.5 also have M Eds. These qualifications relate to the teaching subjects of these teachers. But DS examinations results are low regardless of these qualifications.

Within the group of DS teachers, better results are not associated with more qualified teachers. In school S.2, where the learners' performance is outstanding and the majority of students pass with grades A, B, and C, teachers have only B Eds. The performance in this school is better than in schools where teachers have PGDEs and M Eds.

In S.8, the DS teacher has not studied any education courses at all, and his qualification does not relate to the subjects he is teaching, as he has only done BA Law. However, examination results in that school (S.8) are better than in those schools where DS teachers are appropriately qualified. This suggests that teacher qualifications as an influence on academic achievement does not function independently. Similar conclusions have been reached by Lynn (1988). He concludes that, all by itself, teacher education is not a key determinant of learners' performance. Therefore, employing teachers who hold university degrees may not guarantee desirable outcomes when there is a lack of motivation among such teachers.

Geography teachers have qualifications similar to those of DS teachers. The majority of these teachers have BSc Ed and a few of them have B Eds. Only one geography teacher out of the total number of nine has PGDE and one has an M Ed. All of them have studied geography as their teaching subject. This implies that while teacher qualification does not account for differences in performance within DS it also does not account for relatively better performance in geography as compared to DS. However, one cannot ignore the fact that there may be a difference in the content of BSc Ed and B Ed although there is no difference on the actual qualifications level. This has not been addressed by the study. Both degrees have prepared teachers for their teaching subjects.

4.5.1.4 In-service teacher training

The Central Inspectorate (CI), National Curriculum Development Centre (NCDC) and the Transformation Resource Centre (TRC) provide in-service teacher training mostly by way of workshops and seminars for DS and geography teachers annually with the intention of improving academic

achievement (*Educational Policies in Lesotho*, 2003). The study suggests that there is no relationship between number of in-service courses attended by DS teachers and learners' performance in 2003. Only one teacher out of sixteen DS teachers who participated in this study did not attend any in-service training in 2003 – the rest all attended one or more courses.

What is most striking is a comparison between S.5 examination results and the results of other schools. The S.5 teacher never attended any in-service teacher training, but his school's pass rate was 72%. 6% of the students in S.5 got grade 'C' compared to S.3, S.7 and S.9 whose teachers attended three in-service teacher training in 2003 alone. The majority of students in these three schools got grade 'U' (fail). S.1 remains the lowest under-achiever (with 78% in grade 'U') despite the fact that the DS teacher attended two in-service teacher training courses in 2003. DS teachers in S.4 and S.14 each attended one in-service teacher training course, but they have high pass rate of 93% (S.4) and 100% (S.14). These results are better than results in most schools in which DS teachers attended more than one in-service teacher training.

With the exception of one school, all geography teachers attended in-service teacher training once to three times in 2003. But examination results for this subject in schools where teachers attended three in-service teacher training courses are no better than in those schools where teachers attended these training once or twice or even never. In the best performing school, S.2, the geography teacher attended only one in-service teacher training course, arguing that her headmaster does not like them: "My headmaster says they are a waste of the teaching time" said the teacher.

These comparisons suggest that the pass rate does not increase or decrease with the number of in-service training courses a teacher attends in either DS or geography. While in-service training is assumed to improve teachers' skills and enable them to become competent (UNESCO, 2000), it is evident that such benefits fail to cascade into the classroom. A weak relationship between

in-service teacher training and examination results is observed in this situation.

4.5.1.5 Instructional facilities and materials

Both DS and geography teachers use textbooks as the prime educational materials in the teaching and learning of these subjects. (See Appendices 10 and11). All DS students and all geography students have access to textbooks. Different results cannot be explained in terms of lack of access to textbooks. This suggests that studies looking for positive correlation between these two variables (textbooks and learners' performance) may have to observe the actual use of such educational materials in the classroom rather than just considering their absence or presence (Marope, 1996).

4.5.1.6 Homework

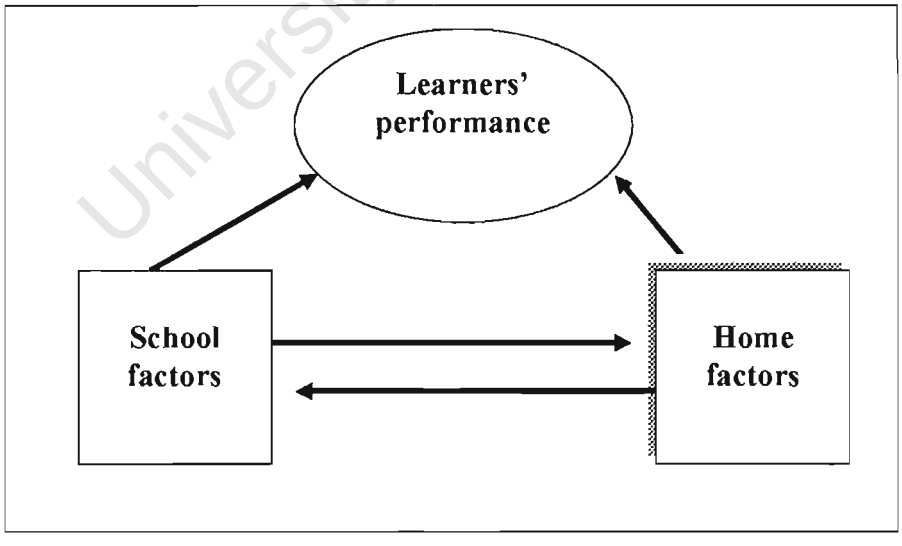
All DS teachers in group A give their students homework either weekly, fortnightly or once a month. The homework was given in the form of essays and mini research tasks. However, there is no significant pattern of examination results that correspond with either the frequency or the type of homework assigned to students. For instance, in S.1, which is the lowest performing school in this study, students are given short essays for homework every week. And in S.7, which is also a low achieving school, homework is assigned to students weekly in the form of essays. This is similar to S.2, which is the highest achieving school. On the other hand two DS teachers in group B (S.8 and S.11) assert that they do not give their students homework at all. In her own words, one of these two teachers said, "I don't like giving them homework because they don't do it at home, they do it in the morning here at school and copy from each other". However, examination results in these schools (S.8 and S.11) are better than in some of the schools where students are assigned homework.

One may hypothesise that homework is related to equity and therefore it needs a multivariate analysis, which will take into consideration the socio-economic background of the students' families. Anderson (1986) agrees that most students who come from low socio-economic families do not often finish

their homework because they are often working after school. In some rural areas, students arrive home late from school because they walk several kilometres from school. Lerotholi (2001) concedes that due to physical inaccessibility of schools, 83% of secondary students in Lesotho walk long distances to school. This means that most of the students who are from low income families in the rural areas and in the informal settlements do not have enough time to do their homework and this has the potential to offset their performance.

A similar situation is observed in geography. It is on these grounds that one understands the success of learners' academic performance in homework to be articulated with both school factors and home factors. I perceive this articulation to be characterised by forward and backward linkages that indicate that academic achievement depends on school factors and the socio-economic milieu within which students are embedded. Figure 13 below displays these linkages.

Figure 13: Links between school factors, home factors and learners' performance.



In conclusion, homework does not account for differences in results within DS and geography. Its effects on the learners' academic achievement may be related to those learners' family background.

4.5.1.7 Examination schemes: A comparison between research in development studies and map reading in geography

As described in chapter four, DS teachers strongly criticise the DS examination papers as being subjective, complex and difficult. This suggests that the majority of DS teachers might not be confident in their command of the subject matter, especially with regard to paper 3.

Teachers' responses indicated that some of them felt that they have not mastered the teaching of data interpretation and research. As a result, they are not able to prepare their students well for such examinations.

In each of the two subjects there is one section of work that is considered to be difficult and which impacts negatively on overall learner results, namely: individual research projects in the case of DS, and map reading in the case of geography. However, the research section has a greater negative impact on DS results than does the map reading section on geography results.

The COSC DS teachers who hold B Ed degree from National University of Lesotho (NUL) and education diplomas from Lesotho College of Education (LCE) pointed out that they have not done research in their teaching training programmes. These teachers therefore seem to be inadequately prepared to instruct research. Seotsanyana (2003) argued that there are claims that the B. Eds from NUL are to blame for the overall decline in students' under-achievement in DS at the secondary school level. On the other hand, geography teachers from these tertiary institutions (NUL and LCE) are trained in the didactics and pedagogy of map work.

Map reading carries only 11% of the total marks for the subject, while research carries 25%. This means that if these two topics are problematic, the latter will affect results more than would the former.

In addition, students' and teachers' attitudes towards research projects and map work are not the same. Geography teachers interviewed for this study do not complain and dislike map reading the way DS teachers have indicated

they do with research projects. Students are not always chased to attend map reading lessons as is the case with research. In one school, the DS teacher reported that all their COSC students were desperate to register for geography rather than DS because they (the students) did not want to do the DS research projects. If teachers do not like teaching, supervising and marking research, surely, performance in that subject will not be good. Also, if students dislike the subject, it is highly likely that they will perform poorly. Attitudes play an important role in the teaching and learning of DS (Seotsanyana, 2003).

The amount of time needed for undertaking, supervising and marking DS research projects is much more than that needed for map reading. Map reading is just a sub-topic to be completed within a certain period of time during the course like other topics, but research is undertaken throughout the course. Teachers and students find it stressful and therefore do not carry it out happily.

A comparative analysis of map reading notebooks and workbooks, as well as research notebooks collected from the best students in group A schools, demonstrate that there are more substantial learning support materials for map reading than for research. Learning support materials are efficient tools for academic achievement (Harbison and Hanushek, 1992).

Another issue to note is the fact that research by its nature is subjective. Homogeneity of standards of measure and marking is difficult to achieve in research, especially when schools and moderators involved in the assessment process are many, as Eckstein and Noah (1992) observe. Some DS teachers on one hand think that the proposed research criterion (Appendix 28), which they are expected to adhere to, is not fair, and as a result they do not use it. Consequently, learners do not learn to produce research that aligns with the marking criteria. Other DS teachers do not understand this criterion. On the other hand, multiple-choice questioning used to assess map reading in geography is objective. The fact remains, if the correct answer is 'A', it is

universally so. (Refer to Appendix 29, which is the 2003 geography paper 1 final examination).

In summary, it can be concluded that teachers have more difficulty teaching the DS research section than the geography map work section. This may be attributed to factors such as absence of teacher training course[s] in the local tertiary institutions on research (DS), compared to the presence of map reading courses in such institutions; the percentage each topic (research and map reading) is allocated in the total marks for the subject; negative attitudes of DS teachers and students towards research, which is not the case in map reading; the amount of time and work involved in research as well as subjectivity involved in its assessment and marking compared to more explicit criteria in map reading.

4.5.1.8 The use of English as a second language: Comparative analysis between development studies and geography examinations

One other factor affecting achievement in both DS and geography is the use of English Language as the medium of instruction and assessment. Map reading is assessed through twelve multiple-choice questions while with research, students are expected to write a report of about 3, 500 to 6,000 words. The latter requires students to have good command of English and to be able to use up to date development concepts. Examiners complain that students are not familiar with these concepts.

While it is true that a good command of English is needed in geography, especially in paper 2, candidates are awarded full marks for drawing a well-labelled diagram and do not necessarily have to write essays in this subject. A good examination tests several skills. Geography examination papers are considered to be fair because they do not only test students' skills in verbal form, but also in numerical and diagrammatic form (Riding and Butterfield, 1990). Consequently, the use of English as a second language impacts more negatively on students' performance in DS than it does in geography. Examining students in English, who seldom use that language outside school and may not speak it well, is a recipe for failure (Eckstein and Noah, 1992;

October, 2002). These dilemmas negatively affect learners' academic results (Eckstein and Noah, 1992).

4.5.2 Group A and B: Development Studies - Students to subject distribution

The factor discussed below is not derived from literature review, but emerged during data analysis.

In four schools from group A, and three schools from group B, DS is designated for learners who do not do science and are considered to be academically weak. In S.3, where DS is done by science and non-science learners in alternate years, results tend to be low for non-science students and better for science students. Moreover, schools in which DS is done by non-science students have low performance in DS. With the exception of one of these schools, which had 3% passes in Grade B all these schools did not have any grade A or grade B results in 2003. Over 50% of their candidates respectively got grade U (Ungraded). Grossen (1996) agrees that when low achievers are grouped together in relation to the subjects they are studying, which are often determined by their academic capability, their performance does not improve.

DS is a compulsory subject for all COSC students in two schools. DS results in these schools are comparatively better than in schools where DS is allocated strictly to students who do not study science and whom teachers identified as low performers.

Students are free to choose for themselves the subjects they want to study at COSC level in two schools, and their classes are arranged in mixed ability groups. The DS results in one of these two schools (S.2) are better than the results in all four schools where DS is done by non-science students. The DS results in the second open choice school (S.11) are better than two of the four schools in which DS is done by non-science students.

4.5.3 Group A and B: Geography – Students to subject distribution

In four schools, students who do science also do geography. The results of these schools are comparatively better than the results of those who do DS.

In three of the schools from group A and one from group B, geography is compulsory for all COSC students. In the three group A schools where DS is also offered geography results are comparatively better than those for DS. In 2003, there was a 100% pass in a school where subject distribution was open to students.

This research study concludes that examination schema; the use of English as a second language and the student to subject distribution have a negative effect on performance of students in DS. In a majority of schools in this study, DS is offered only to students who do not do science and who are considered to be academically weaker. In these schools, DS results are consistently lower than geography results in the same and other schools.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

In this final chapter, I revisit the focal research question, which is, what factors are associated with low learners' performance in development studies (DS) compared to relatively better performance in geography at Cambridge Overseas School Certificate (COSC) level in the southern region of Lesotho? The conclusions review the degree to which various factors identified in the literature explain different levels of performance in these two subjects.

The study commenced with the consideration of examination results at Form E level in selected schools in order to determine whether DS performance is indeed, lower than geography performance. A comparative analysis of 2002 and 2003 examination results in these two subjects shows that geography results are relatively better than those for DS. In six schools out of seven schools that offered both subjects (Group A), DS results are lower than geography results. Only in one school are the results for DS higher than the results for geography.

The research studied factors considered in the literature to be associated with variations in levels of academic performance. The factors considered were:

- Teacher experience
- Class size
- In-service teacher training
- Teacher qualifications
- Instructional facilities and materials
- Homework
- Organisation of school curriculum and examinations
- Use of English as the second language

Data analysis revealed that the first six factors on the above list do not have any significance in explaining different levels of performance in DS and geography in the schools in this study.

Learner results in DS and geography were reviewed in relation to factors listed above. These factors may well be important in explaining the overall performance across the system. For example, large class size across the system or teachers' qualifications may well impact on performance in all subjects, but in this study their impact was compared in only two subjects within the same system.

The analysis suggests that factors that do influence different levels of performance in DS and geography are the organisation of examinations, the use of English as a second language and students to subject distribution. The nature of complexity of assessment task within DS and geography examinations and students to subject distribution are factors that emerged during data analysis. They are not identified in the literature as factors that account for variations in learners' performance in the literature.

The examination schemes of DS and geography are remarkably different. While the DS final examination consists of three papers, paper 1, paper 2 and paper 3, the geography final examination consists of two papers, paper 1 and 2. On the one hand, all DS teachers who participated in the study complained about paper 3 (which comprises individual research projects), arguing that it lowers learners' performance due to negative teachers' and learners' attitudes towards it; the scale of work involved in carrying it out; the absence of teachers' and learners' support guide for the paper; the scale of use of English as the second language in this paper; and the weighting of the paper to determine the overall marks for the subject.

Both DS teachers and students have negative attitudes towards DS paper 3. Students hate the paper due to the amount of work they are expected to do in it. The majority of teachers who participated in the study also said that they dislike paper 3 because there is a lot of work involved in teaching, supervising

and moderating it. Furthermore, a lack of training in research methods from tertiary institutions causes these teachers to feel unprepared in teaching this section. Respondents indicated that the majority of DS teachers do not prepare their students well for this section in the final examinations, mainly because they themselves are not sure how to approach this section. This means that DS teachers lack ability to teach the research component.

There is also one section in the geography examination that is considered to be difficult. All the geography teachers who were interviewed perceive the map reading section in paper 1 as a section in which students achieve low marks.

However, a comparative analysis of map reading notebooks and DS research notebooks shows that map reading has a more carefully structured support guide than the DS research component. Moreover, the study found that paper 3 accounts for 25% of the overall marks for DS, while map reading accounts for only 11% of the total marks for geography. In addition, the use of English as a second language has more impact on research than it does on map reading. Map reading is assessed by only twelve multiple-choice questions, while for DS paper 3, the study discovered that students are expected to write a research report of between 3 500 to 6 000 words in good English. Thus, even though both subjects include sections that bring down students' results, this effect is much great in DS than in geography.

Another reason for lower performance in DS than geography is the fact that in most of the schools, DS is studied by low achievers who do not do sciences, while geography is reserved for science students who attain better scores in the examinations.

In sum, low learners' performance in DS at COSC level in the southern region of Lesotho is influenced by the structure of the curriculum in schools, and the distribution of subjects to students; the structure of the DS examination papers including the degree to which such examinations requires

competences in the medium of instruction; the degree to which teachers are trained to teach the subject (DS) and feel competent to do so.

5.1 Recommendations

The study identified several problems that may need to be addressed by the department of education and other stakeholders in Lesotho, be it at national level or at regional level. One problem is DS learners' and teachers' attitudes towards carrying out and supervising research projects. A second problem is the absence of research courses for student teachers at the local tertiary institutions. The education department may need to take into consideration the issue of teachers' preparedness for the teaching of the individual research projects in DS, since one of the most important determinants of what students learn, is what their teachers know. A third problem is insufficient learning support materials for the teaching and learning of research in DS. Map reading in geography has a well structured support guide in the form of a notebook and a workbook, this is not the case for DS. It may be considerate to have such DS learning support materials similar to those provided for map reading. A fourth problem is the use of English as a second language in schools. A fifth problem relates to the organisation of school curriculum. The national education department might consider whether the use of DS as an effective weak stream is in the interests of students or merely a mechanism for excluding weak students from science.

5.2 Limitations of the study

This study has several limitations. As a minor dissertation, the study has limited scope. It has not been possible to thoroughly examine all school and home factors that may be associated with learners' performance. The study focused on factors that emerged from the literature review and the interviews. There was no direct observation of teaching and the use of textbooks in the classroom. Moreover, the study used learners' results in the COSC examination as an indicator of their competence and did not examine actual learner texts such as examination answers.

The study was carried out in only one region in Lesotho, where out of 72 high schools, which offers DS in the whole country; only 25 schools were included in the study. The empirical findings of this study cannot be generalised to the rest of the country. However, the factors that explain differences in achievement in DS and geography in this region are now available to be tested in other regions.

5.3 Potential for further research

The findings of this research may provide a first hand indication of factors impacting on DS and geography learners' performance. In both subjects, teaching rests heavily on textbooks use. Ways in which textbooks are used would be an essential topic for further research.

Comparative evidence on existing factors influencing the DS COSC examination results in the southern region of Lesotho is still relatively sparse. While the approach to teaching DS appears to be fairly similar across schools, the results are dramatically different. Some schools constantly have 100% pass rates with outstanding grades (A or B) in DS, while other schools remain constantly below 50% and their students never obtain grades A or B. To a lesser extent, the same is true with geography. Further research on this phenomenon might be worthwhile.

The study concludes that the research component of DS, the use of English as a second language and students to subject distribution present a bigger problem that is more conspicuous than presented by map work in geography. This may contribute to making performance in DS relatively lower than performance in geography.

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Appendix 1: Interview schedule

Interview questions for DS and geography teachers.

a. For how long have you been teaching DS/geography at COSC level?
b. How many COSC DS/geography teachers does your department have? What is their gender?
c. For how long has each of these teachers taught DS/ geography at COSC level?
d. What educational materials are used for teaching and learning of DS/geography in your school? (Probes) – Do you use maps or textbooks (which ones?), worksheets, workbooks or atlases?
e. Does your department have a homework timetable record? May I see it?
f. (i) Do you give homework?
   (ii) What kind of homework do you give your students in terms of scale and content coverage?
g. How many DS/geography students do you have in your COSC classes?
h. (i) How often are you going to have in-service teacher training in your subject this year? And how many were they last year? What did they deal with?
   (ii) Which parts of the syllabus does the in-service teacher training cover? And which parts do you think the training ignores?
i. What academic qualifications do you have?
j. What are your teaching subjects? (The ones you are trained in?)
k. What are the academic qualifications of other COSC DS/geography teachers? And what are their teaching subjects? (The ones they are trained in?)
l. How is DS/geography assessed in the final examination in terms of number of papers and their contents?
m. How do the examiners comments about the DS/geography performance in their reports?

Appendices 2 and 3: Correlation tables of DS and geography teachers' experience and learners' performance

2.

School	DS teachers' experience	Total Pass
S.1	15	11
S.2	14	91
S.3	20	11
S.4	20	62
S.5	8	78
S.6	10	26
S.7	10	8
S.8	10	20
S.9	3	10
S.10	7	29
S.11	8	12
S.12	5	76
S.13	4	17
S.14	10	17
S.15	22	8
S.16	6	52

3.

School	Geo teachers' experience	Total Pass
S.1	17	18
S.2	6	17
S.3	4	39
S.4	10	30
S.5	28	33
S.6	10	17
S.7	4	18
S.17	10	6
S.18	6	98

Appendices 4 and 5: Correlation tables of DS and geography teacher-pupil ratio and learners' performance

4.

School	Teacher-pupil ratio (DS)	Total Pass
S.1	1:20	11
S.2	1:33	91
S.3	1:23	11
S.4	1:28	62
S.5	1:27	78
S.6	1:23	26
S.7	1:18	8
S.8	1:80	20
S.9	1:15	10
S.10	1:25	29
S.11	1:10	12
S.12	1:15	76
S.13	1:30	17
S.14	1:13	17
S.15	1:9	8
S.16	1:23	52

5.

School	Teacher-pupil ratio (geography)	Total Pass
S.1	1:28	18
S.2	1:25	17
S.3	1:30	39
S.4	1:17	30
S.5	1:50	33
S.6	1:23	17
S.7	1:15	18
S.17	1:45	6
S.18	1:33	98

Appendices 6 and 7: Correlation tables of DS and geography teachers in-service teacher training attended and learners' performance

6.

School	No. of DS in-service teacher training attended in 2003	Total Pass
S.1	2	11
S.2	3	91
S.3	3	11
S.4	1	62
S.5	0	78
S.6	3	26
S.7	3	8
S.8	1	20
S.9	3	10
S.10	1	29
S.11	2	12
S.12	2	76
S.13	3	17
S.14	1	17
S.15	2	8
S.16	3	52

7.

School	No. of geography in-service teacher attended in 2003	Total Pass
S.1	3	18
S.2	2	17
S.3	1	39
S.4	0	30
S.5	1	33
S.6	3	17
S.7	1	18
S.17	3	6
S.18	2	98

Appendices 8 and 9: Comparison tables of DS and geography teachers' qualifications and teaching subjects relating to their qualifications with learners' performance

8.

School	COSC DS teachers' qualifications	Teaching subjects related to qualifications	Total pass rate (%)
S.1	All B Ed	DS & others	28
S.2	All B Ed	DS & others	100
S.3	BA Ed & B Ed	DS & others	55
S.4	M Ed, BA Ed & B Ed	DS & others	93
S.5	M Ed & B Ed	DS & others	72
S.6	2 B Eds & B Ed	DS & others	49
S.7	BA Ed & B Ed	DS & others	32
S.8	BA Law	Law studies	61
S.9	B Ed, BA & Honours in Political Studies	DS & others	67
S.10	BA Ed & B Ed	DS & others	66
S.11	PGDE	DS & others	71
S.12	All B Ed	DS & others	96
S.13	All PGDE	DS & others	95
S.14	All B Ed	DS & others	100
S.15	BA Ed	DS & others	100
S.16	All B Ed	DS & others	100

9.

School	COSC geography teachers' qualifications	Teaching subjects relating to qualifications	Total pass rate (%)
S.1	All B Ed	Geo & others	50
S.2	1 B Ed, 2 B.Sc. Ed & 1 B Ed	Geo & others	100
S.3	B Ed & BA Ed	Geo & others	75
S.4	M Ed, BSc Ed & B Ed	Geo & others	79
S.5	B Sc Ed & PGDE	Geo & others	93
S.6	All B Ed	Geo & others	53
S.7	BA. Ed & B Ed	Geo & others	75
S.17	All B Ed	Geo & others	50
S.18	All B Ed	Geo & others	93

Appendices 10 and 11: Correlation tables of availability of DS and geography educational materials (textbooks) used and learners' performance

10.

School	Availability of textbooks	Total pass
S.1	✓	11
S.2	✓	91
S.3	✓	11
S.4	✓	62
S.5	✓	78
S.6	✓	26
S.7	✓	8
S.8	✓	20
S.9	✓	10
S.10	✓	29
S.11	✓	12
S.12	✓	76
S.13	✓	17
S.14	✓	17
S.15	✓	8
S.16	✓	52

11.

School	Availability of textbooks	Total pass
S.1	✓	18
S.2	✓	17
S.3	✓	39
S.4	✓	30
S.5	✓	33
S.6	✓	17
S.7	✓	18
S.17	✓	6
S.18	✓	98

Appendices 12 and 13: Comparison tables of DS and geography homework given to students and learners' performance

12.

School	Frequency of homework (DS)	Scale and content of homework (DS)	Pass rate (%)
S.1	Twice a month	Sub-topic – short essays	28
S.2	Fortnightly	Mini research	100
S.3	Once a month	End of topic – mini research	55
S.4	Weekly	Mini research	93
S.5	Once a month	Sub-topic	72
S.6	Fortnightly	Sub-topic	49
S.7	Weekly	End of topic	32
S.8	Weekly	Sub-topic	61
S.9	Once a month	Topic	67
S.10	Twice a week	Sub-topic	66
S.11	None	----	71
S.12	Once a month	Topic	96
S.13	Twice a week	Sub-topic	95
S.14	Once a month	Topic	100
S.15	Once a month	Topic	100
S.16	None	----	100

13.

School	Frequency of homework (geography)	Scale and content of homework (geography)	Pass rate (%)
S.1	None	----	50
S.2	None	----	100
S.3	Fortnightly	Sub-topic	75
S.4	Daily	Reading assignment	79
S.5	Fortnightly	Sub-topic	93
S.6	None	----	53
S.7	None	----	75
S.17	None	----	50
S.18	None	----	93

Appendices 14 and 15: Comparison tables of DS and geography teachers' gender and learners' performance

14.

School	DS teachers' gender	Total Pass Rate (%)
S.1	2 female 1 male	28
S.2	1 female 1 male	100
S.3	2 females	55
S.4	2 females 1 male	93
S.5	2 males	72
S.6	1 female 2 males	49
S.7	1 female 1 male	32
S.8	1 male	61
S.9	1 female 1 male	67
S.10	1 female 1 male	66
S.11	1 male	71
S.12	2 males	96
S.13	2 females	95
S.14	1 female 1 male	100
S.15	1 male	100
S.16	1 female 1 male	100

15.

School	Geo teachers' gender	Total Pass rate (%)
S.1	2 females	50
S.2	1 female 2 males	100
S.3	2 females	75
S.4	3 females	79
S.5	2 females	93
S.6	1 female 1 male	53
S.7	1 female 1 male	75
S.17	2 females	50

CORRECTION

Appendix 16 S-1 Research project

Topic: Benefits of BEDCO trade centre on poverty reduction in Mohale's Hoek town.

Definition: Basotho Enterprises Development Corporation.

Background:

Bedco is a parastatal of Lesotho government it started its operation in 1975 under the ministry of trade, industry and marketing in Maseru as its (1) head quarters as subsidiary corporation of Lesotho National Development Corporation. (LNDC)

Basotho Enterprise Development Corporation was newly established on its own in 1980 by an act of the parliament act no 9 of 1980 as amended. The aim of establishment was to assist Basotho small scale enterpreneur (2) people through out the country to promote economic Development. as changing for the better nation, ~~socially and economically to fight against poverty.~~

Bedco
Now, extended in some districts in the country of Lesotho. one of them is here in Mohale's Hoek (3) districts on Motse-Mocha near Rural water supply offices in the eastern side of Sally's bricks and here it was established in 1983

The aims work of Bedco is to assist Basotho people with enterprise development skills to trainees technical skills and (5) business management skills in various programme like sewing tailoring and welding.

class

The infrastructure available at Bedco Trade Centre are roads, electricity, posts and telephone. this helps this corporation to work more fast like telephones helps in quick communication, roads help in quick transportation of goods, electricity helps people sewing to sew more quickly because the electric sewing machines are the ones that are also sewing much more faster, this make production to be much faster.

④

Bedco provides a huge timber yard where wood materials and its accessories can be bought at subsidized prices for example school desks, this makes production in schools be comfortable, suitable and quick.

It assist in running work shops that can be visited by enterpreneurs to get knowledge of morden skills acquired by people running that production.

Bedco trains people in handicrafts and this, helps people who were dropouts at school try their best talents like wood work, shoe making, metal work and pottery. When they have succeded it now enables them to create their own jobs or small scale businesses not to seek for jobs already created. These decreases problem of unemployment to the country as people will be self employed. M.T.J.

Bedco assits in provision of workspace by means of renting for example, if a business man has some goods to provide to people

o find out whether

Bedco assist in provision of work space by means of renting for example if a business person has some goods to provide to people and has a problem of where the production will take place, Bedco solves the problem by providing rent at low charges and gives advisory services to enterpreneurs.

OBJECTIVES

① To find out whether Bedco's aim of establishment is ~~loans fairly to all small scale enterpreneurs~~ important to people in Mohale's Hoek town.

② To ~~know~~ whether Bedco in ~~100%~~ working efficiently on poverty reduction in Mohale's Hoek town like provision of work spaces.

③ To find out whether Bedco has all the infrastructure named and whether they help in poverty reduction

OBJECTIVES

1) To find out whether BEDCO provide loans to small scale enterprises so as to overcome poverty.

OBJECTIVES.

1) To find out whether BEDCO provides loans to small scale enterprises so as to start their own businesses.

2) To find out whether BEDCO trains people in technical business management like sewing so that people can be self employed.

3) To research whether BEDCO provides workspace by means of renting business premises

The infrastructure available at Bedco Trade Centres are Roads, electricity, posts and telephones. This helps the corporation to facilitate more fast like telephones help in quick communication. roads help in quick transportation of goods. electricity helps people sewing to sew more quickly because the electric sewing machines are the ones that are sewing much more faster. this makes production also to be much faster.

The aims of Bedco is to assist Basotho people with enterprise skills and technical business management in which participants are trained in various programmes like sewing, book keeping, tachering and welding.

Bedco provides a huge timber yard where wood materials and its accessories can be bought at subsidized prices for example desks and chairs. It assists in running classes that teaches people in handicrafts and this helps people who were drop outs at school try their best talents like wood work metal work and pottery. when they have succeded it now enables them to create their own small scale businesses not to seek for jobs already created. These decreases the problem of unemployement in Maseru Hoek town.

The goods that have been produced by the participants are sold in order to get money to buy other goods that will be needed to produce more and another money is provided to small scale enterpreneurs as loans at lower interest charges.

Statement of the problem SO for this reason

Ever since Bedco was established, it assisted in provision of loans to small scale enterpreneurs, technical business management trainings like sewing so that people can be self employed and also provides workspace by means of renting the aim of the research is to find out whether or not the above issues have impact on poverty reduction in Mohales Hoek town.

Not ~~for~~ correct

Statement of the problem

Ever since Bedco was established it aimed to reduce poverty in Mohale's Hoek town by providing loans but the rate of poverty is still increasing and for this reason the researcher wants to ~~know~~ find out ~~why poverty is still attacking people~~ yet BEDCO ~~people~~ provides ~~loans to small scale enterprises~~. how efficient is BEDCO in provision of services. 17/05/04

Statement of the problem

Ever since Bedco was established it aimed to reduce poverty in Mohale's Hoek town by providing loans but the rate of poverty is still increasing and for this reason the researcher want to find out how efficient is BEDCO in provision of services.

giving loans

Population,

sample inference →

method / instrumentation

Appendix 17 - S.3 Research project

~~Attitudes of people~~

Attitudes of Ha-'Mapotsane villagers towards Tuberculosis (T.B)

Introduction

It seems ~~like~~ many people at Ha-'Mapotsane are infected day by day with Tuberculosis. This disease is caused by a tubercle bacilli, which mostly attack the lungs, causing some defects in breathing. bacteria called

A person may get T. B. from smoking or from being infected by getting in contact with a person who is infected. Also from ~~breat~~ inhaling ~~the~~ air that is exposed to the bacteria.

~~What~~

It is amazing to realize ~~hear~~ that the teenagers at Ha-'Mapotsane (is) up-to-date ~~if the~~ they ~~or she~~ smokes. So, more teenagers increasingly smoke. Therefore this means that the more people are involved in smoking the higher they suffer from T. B.

T. B. is highly infectious ~~at~~ *2 Ha-'Mapotsane, *3 because many people are ignorant about this disease, as well as ~~well~~ not ~~uneducated~~. Most of the people strong ties believe in ~~mati~~ traditional beliefs and healing ~~herbs~~ and do not think and believe that T.B ~~exist~~ exists. *4 Again many people have large families living together in one small house. As a result, this causes some poor ventilation and, if one of the family members is infected,

Need to write

Wrong side.

the bacteria easily spread and fill the whole house hence all the family might be infected.
Again, pollution also contributes to the spread of the disease
b Because if somebody infected persons usually spit on the ground; and,
a Afterwards the spit dries out. Then some wind blows up away
into the atmosphere. Some bacteria from the spit people are likely to be
Then infected if they inhail the bacteria.

of Ha-Mapotsane is found on the south of Lesotho in the Mohale's Hoek district. It is four miles from Mohale's Hoek town, along the road to Quthing. The houses there are nuduated with lack of services such as toilets. This which means that most of the land is polluted. Both infected and ~~unef~~ uninfected people we the same piece of land for feaces disposal ~~place as toilets~~. Because the waste matters are exposed, all the people ~~to~~ using ~~so called toilets~~ such places, usually
gas, get infected. to the surroundings

Most people there are not uneducated and are poor. That is why few people afford to have toilets and have an idea about infectious diseases. Again few people afford to have a good diet which is needed by people with T.B.

- Try to write good English!

* and mixes with soil.

The village

ustruction:

It should have been explained earlier, that faeces and also contributes (and how) towards the spread of T.B. You only wrote about spit, and smoking.

overcrowding

- In the overcrowding, the sharing of utensils should be mentioned.

History says it that was the disease was stigmatised, for different reasons one of which wa poverty. Some people fear to be thought of being poor! There was a misconception, especially in the past, that peope who contracted T.B. were normally the poor ones or of poor family backgrounds. People came to this conclu because it was understood that usually poor people do not have enough houses hence are congested in one part where it becomes easy for them to infect each other

Why don't you punctuate your work!?

*1 feel that they are they

*2 and, many villages, including

*3 are affected, especially

*4 Most people who have T.B. are thought to have been bewitched and poisoned. This results in the disease ultimately not treate

1.1 INTRODUCTION Appendix 18 - S.6 Research Project

The importance of National Drug Service Organisation in Maseteng town.

National Drug Service Organisation is an Organisation where medical drugs are manufactured and those drugs are in the form of tablets and medicines. These drugs are tools or substances prescribed by doctors to treat or prevent many diseases.

The National Drug Service Organisation is found in the Mafeteng town which is 78 kilometres South of Maseru. The place is on the main road to Maseru, near Zachura Supermarket and opposite Golden Hotel.

The organisation manufacture tablets and medicines in order to promote good quality of life. The products are send to the Lesetho Pharmaceutical Corporation which will distribute the products to the government hospital and other health charities. The products are used by the people who are affected by different diseases in order to annihilate bacteria and virus infectious diseases. Its a matter of fact the life expectancy will increase due to the rate of death reduced by those drugs.

The researcher was inspired by the entire work which is done by the Organisation as it produces different kinds of pills and medicines which improve the good health in the society. The Organisation also contribute to dependency and Self-reliance in our Country as it will not have to import drugs from other Countries.

1.2 STATEMENT OF THE PROBLEM

In the recent years people used herbals to treat their diseases but because of development ~~concept~~ which implies modern technology, chemicals are used to manufacture tablets and medicines. The drugs will be used by the sick people for the prevention and curable of diseases. However the use of drugs can also cause sickness and death if the are used improperly. No drug is absolutely safe but proper use is beneficial. The study is therefore intended to investigate the importance of National Drug Service Organisation.

✓ good

Objectives

- The researcher wants to find out if the National Drug Service Organisation is owned by the private companies or the gavernment. How is it related to the topic?
- The researcher intends to examine if the Organisati Contribute to the economy of the country when Selling its products.
- The researcher wants to investigate if of the goods produced are exported to other countries.

-The researcher wants to find out if in the organisation both skilled and unskilled people are employed. ~~in this organisation~~.

: Appendix 19 - S.7 Research project

~~CHAPTER~~

CHAPTER 1

INTRODUCTION

A library is a house of collection of books for students to get any information they need. Every one or every students to get or borrow some books. ~~at~~ at their school library.

The ~~library~~ research is based at Likuena High school which is in the village of Kubatke, near the mountain not far from the shops and the town, in Mabale's North district. And his school is not far from the road and is in the ~~center~~ centre of the village, next to the bonga.

The structure of the school campons is rectangel and it has big fields and on top there next to the small gate we have buildings where the guards live and ~~te~~ some of the teachers, then is the ogger, down there is the lab and the ~~library~~ library is in the part of the lab. It was used as a maths room ~~before~~, and is next to the form C block and form D block. It even has a verenda. ~~This~~ The building of this library, is beautiful because is been built with stones and its been, mixed with bricks.

This ~~is~~ library is used by students who attend school at Likuena. Most of the them are poor so that they are not able to get or buy their own books, ~~but if the school~~

- So if the library was used effectively, most of the students whose standard of living is very low those whose parents can not be able to buy books at the same time can be able to get books from the library and get what information ever they want. Moreover if it wel was used effectively the results of our school will be improving better and better as we will be read every book which is necessary for certain subjects.

- If the school can provide good services towards students about the help of the library, our school results can be improved and everybody get what he/she wants from the books from the library, even if they are not able to get them from the books shops.

STATEMENT OF THE PROBLEM

Throught out all the whole district of Mr Mobale's Hoek, etc I observed that Likweng High school library is providing poor services towards students. It affects their learning because of not having all the books which are necessary. However students seemed not to be satisfied about their library, may be is because of its smallestness and it lack of some materials Therefore I'm comcerned about finding out what can be improved be done to improve its services.

AIMS / OBJECTIVES

To find out

- Where does it get its funds to buy materials
- Does it contribute to the development of ~~our~~ ~~school~~ Limuru High School.
- What is its role in the school campus.

Questions.

1, Do ~~you~~ the students need a library,
2, Are they satisfied when it is not there.
3, What are the causes of its absences.
4, What is the main problems causing the absenc
5, of the library,
6, What are the begits that students can get
7, from it.

S.O.P.

Infrastructure in a school is very importan
A library is one very important tool in the learning of students. I have observed

Aims.

- Why the library is not used
- How it could contribute to learning
- What the school could do to improve its library

Appendix 20-5.4 Research project

Unemployment problems encountered by the youth and their effects on their lives at Likhoele.

CHAPTER ONE

1.1 Introduction

Unemployment according to Oxford Advanced learners dictionary is a state of being without a job. Most of the third world countries experience the problem of unemployment. Unemployment can be caused by a number of factors; including low level of education, lack of money to create job opportunities such as industries, adoption of strategies that concentrate on capital intensive methods and reduce human labour and also high population growth that may not all be absorbed by little job opportunities.

Unemployment generally may affect the unemploye in a variety of ways. People may be affected psychologically and physically. Futhermore, unemployment may lead to migration, prostitution Crime and urbanisation. Lesotho is one of the countries that experience this problem. Although Lesotho is recognised as one of developing countries, there is a sign of industrialisation which could reduce unemployment, but one could urgue that there is a considerable number of unemploye youth at Likhoele Village.

The youth a Likhoele also seem to encounter a number of problems, such problems may

shape their future either positively or negatively ✓

1.2 STATEMENT OF THE PROBLEM

The researcher has observed that most youth of Likhoele are unemployed, therefore they end up loitering trying to seek employment and they also engage in crime and sometimes prostitu
The research will investigate the problem encountered by the youth and how such problems affect their lives ✓

1.3 OBJECTIVES

② To find out unemployement problems encountered by the youth of ✓ Likhoele.

③ To find out how unemployment affe the lives of the youth. ✓

④ To find out how the youth solve their problems. ✓

⑤ To find out what the community is doing to reduce youth unemployment

① To find out why the majority of youth are unemployed at Likhoele.

⑤ To find out if there are government efforts so far, to reduce youth unemployment.

⑤ To find out if there are government efforts so far, to reduce youth unemployment.

① To find out why the majority of youth are unemployed at Likhoele

CHAPTER TWO

2.1 METHODOLOGY

The researcherwould like to collect data by using interview, questionnaire and observation method.

Interview is whereby the researcher talks face to face with the respondent. By using this method the researcher will be able to gauge the truthfulness of the respondent and sometimes the method can come in handy where people are illeterate. On the other hand interview may waste time especially when people are too busy at their work and some people may be shy and cannot say out their opinions. ✓

Moreover, Questionnaire is whereby the researcher compiles the questions on a paper and expects the respondent to answer. This method is advantageous because people may feel free to write their opinions and it allows people to fill in the answers at

their own convenient time unlike interview where the respondent may have to give answers here and there. On the other hand the respondent may lie and also misplace the papers and sometimes may not attempt all the questions. ✓

And lastly, Observation is the method whereby the researcher becomes part of the respondents to learn their experiences, see what they do and how they feel. The researcher will get accurate information of the phenomenon because she (sic) will be part of the respondents. ✓

2.2 DESCRIPTION OF STUDY AREA

~~Likhoele is situated in the Southern part of Lesotho.~~

Likhoele is found in the Mafeteng district and is approximately ~~six~~ kilometres from the Mafeteng town. It is situated in the Western part of Mafeteng. Moreover, Likhoele is ruled by a principal chief. It is a populated area because there are schools, for example Likhoele Primary School and Makena High School.

People living in Likhoele are mostly unemployed youth and a few migrant labourers and farmers. There is a wide gap between the rich and poor.

some people live in fine houses whereas others live in shacks and there is also a widespread starvation Most farmers produce on a small scale, that is, they produce for consumption. There are a few who produce on a large-scale farming.

Because of it's rocky features, Likhoele is accessible by foot and road transport. Most of the people living in Likhoele are Christians. Villagers admire Likhoele because of its mountaineous feature because there are springs where they can get fresh water. ✓

2.3 POPULATION

Likhoele is one of the populated regions in Mafeteng. It is populated by people of different classes. There are high class people who are mostly teachers, and policeme These high class people lead better lives and live in better houses.

There are also the middle class people who work in industries and informal sectors. These people are not very rich but at least they have something to earn. Furthermore, there are low classed people and they do not have much, sometimes they ~~ha~~ use illegal means to get money. There are also a few migrant labourers who form part of the population at Likhoele.

The Majority of these population is mostly unemployed youth. These youth sometimes end up loutering trying to seek employment but the technology is advanced because capital intensive methods are used. Moreove there are a few farmers who farm on small scale.

2.4 SAMPLE AND SAMPLING PROCEDURE

The researcher would like to ~~collect~~ select sample by using the purposeful sampling whereby the researcher chooses the respondents that already have relevant information about the problem. Therefore, the researcher is going to select 3 respondents (who are the unemployed youths in the community) using this method.

Since the 3 respondents the researcher has identified will be having information, the researcher will use the Snowball method. This method is whereby the researcher gets information of other respondents from the ones that are already identified. Therefore the researcher will select 12 respondents hence the total sample will be 15.

2.4 SAMPLE AND SAMPLING PROCEDURE

The researcher would like to select sample by using the purposeful sampling whereby the researcher chooses the respondents that already have relevant information about the problem. Therefore, the researcher is going to select 3 respondents who are unemployed youth in the community.

Since the 3 respondents the researcher has identified will be having information about other people having similar problems the researcher will use the snowball method. This method is whereby the researcher gets information of other respondents from the ones that are already identified. Thefore, the researcher will select 12 respondents hence the total sample will be 15.

CHAPTER THREE

① To find out why the majority of youth are unemployed at Likhoele:

ⓐ Why are you ~~not~~ not employed?
ⓑ Why are most youth at Likhoele unemployed?
ⓒ What are the main reason of youth unemploy

INTERVIEW QUESTIONS

① To find out why the majority of youth are unemployed at Likhoele.

ⓐ Are most youth at Likhoele unemployed?
ⓑ Why are most youth at Likhoele unemployed?
ⓒ What are the causes of youth unemployment at Likhoele?
ⓓ Was there a high rate of youth unemployment at Likhoele in the past?
ⓔ

② To find out unemployment problems encountered by the youth.

ⓐ Do you encounter unemployment problems?
ⓑ What unemployment problems do you encounter?
ⓒ Why do you encounter such problems?
ⓓ What are the effects of unemployment problems?

③ To find out how unemployment affects the lives of the youth.

ⓐ Does unemployment affect your life?
ⓑ How does it affect your life?
ⓒ Why do you feel unemployment affects your life
ⓓ What can you do in order to stop unemployment from affecting your life?

② To find out unemployment problems encountered by the youth

ⓐ Do you encounter ~~unemployment~~ any problems?

ⓑ What ~~unemployment~~ problems do you encounter?

ⓒ ~~Why do you encounter unemployment problems?~~ Are they caused by unemployment?

② To find out unemployment problems encountered by the youth.

ⓐ Do you encounter any problems?

ⓑ What problems do you encounter?

ⓒ Are they caused by unemployment? ✓

③ To find out how unemployment affects the lives of the youth.

ⓐ Does unemployment affects your lives?

ⓑ How does it affect your lives?

ⓒ Why do you feel unemployment affects your life?

④ To find out how the youth solve their problems

ⓐ How do you solve your problems?

ⓑ What are you doing to solve your problems?

ⓒ Do you succeed in solving your problems? ✓

⑤ To find out if there are government efforts so far to reduce youth unemployment.

ⓐ What does the government do to help reduce unemployment?

ⓑ Doe

(5) To find out if there are any government efforts so far, to reduce youth unemployment.

(a) Are there any government efforts to reduce youth unemployment?

(b) What is the government doing to reduce unemployment?

(c) Does the efforts provided by the government reduce unemployment? ✓

QUESTIONNAIRE QUESTIONS

① TO FIND OUT WHY THE MAJORITY OF YOUTH ARE UNEMPLOYED AT LIKHOELE.

ⓐ Most youth at Likhoele are unemployed.	YES / NO
ⓑ They are unemployed because they are not educated.	YES / NO
ⓒ The causes of unemployment at Likhoele ~~are~~ is lack of money to create job opportunities.	YES / NO
ⓓ There was a high rate of youth unemployment in the past. ✓	YES / NO

② TO FIND OUT UNEMPLOYMENT PROBLEMS ENCOUNTERED BY THE YOUTH:

ⓐ I ENCOUNTER PROBLEMS.	YES / NO
ⓑ I encounter unemployment problems such as not being able to satisfy my needs.	YES / NO
ⓒ Problems I encounter are caused by unemployment.	YES / NO

② TO FIND OUT UNEMPLOYMENT PROBLEMS ENCOUNTERED BY THE YOUTH

~~@I encounter problems~~	YES / NO
ⓑI cannot satisfy my basic needs	YES / NO
ⓒ ~~My problems are caused by unemployment~~	YES / NO

③ TO FIND OUT HOW UNEMPLOYMENT AFFECTS THE LIVES OF THE YOUTH.

~~@Unemployment affects my life.~~	YES
@ I drink too much / I'm engaged in prostitution	NO
ⓑUnemployment affects me physically. / ⓦIm a street vendor. / I have stress	YES / NO
ⓒI can no longer live my own way of life because I am unemployed.	YES / NO

④ TO FIND OUT UNEMPLOYMENT PROBLEMS ENCOUNTERED BY THE YOUTH

@I cannot ~~satisfy my basic needs~~ buy food.	YES / NO
ⓑI cannot buy clothes	YES / NO
ⓒI have migrated to town trying to seek employment	YES / NO
ⓓI am stealing in order to get money	YES / NO

③ TO FIND OUT HOW UNEMPLOYMENT AFFECTS THE LIVES OF THE YOUTH

ⓐ I drink too much.	YES / NO
ⓑ I am engaged in prostitution.	YES / NO
ⓒ I am a street vendor.	YES / NO
ⓓ I have stress. ✓	YES / NO

④ TO FIND OUT HOW THE YOUTH SOLVE THEIR PROBLEMS

ⓐ I am depending on my parent to get money.	YES / NO
ⓑ I hold part-time jobs in informal sectors.	YES / NO
ⓒ I ~~get~~ sell some of my crops to satisfy my needs	YES / NO
ⓓ I join a farmers union ✓	YES / NO

⑤ TO FIND OUT IF THERE ARE ANY GOVERNMENT EFFORT SO FAR, TO REDUCE YOUTH UNEMPLOYMENT

ⓐ The government builds up more industries.	YES / NO
ⓑ The government provide self-help ~~services~~ programmes.	YES / NO
ⓒ It invests in agriculture so that ~~the~~ youth can sell their produce to get ✓	YES / NO

② The government encourages people to trade and help others.

YES
NO

Appendix 21 - 5.1 Map reading

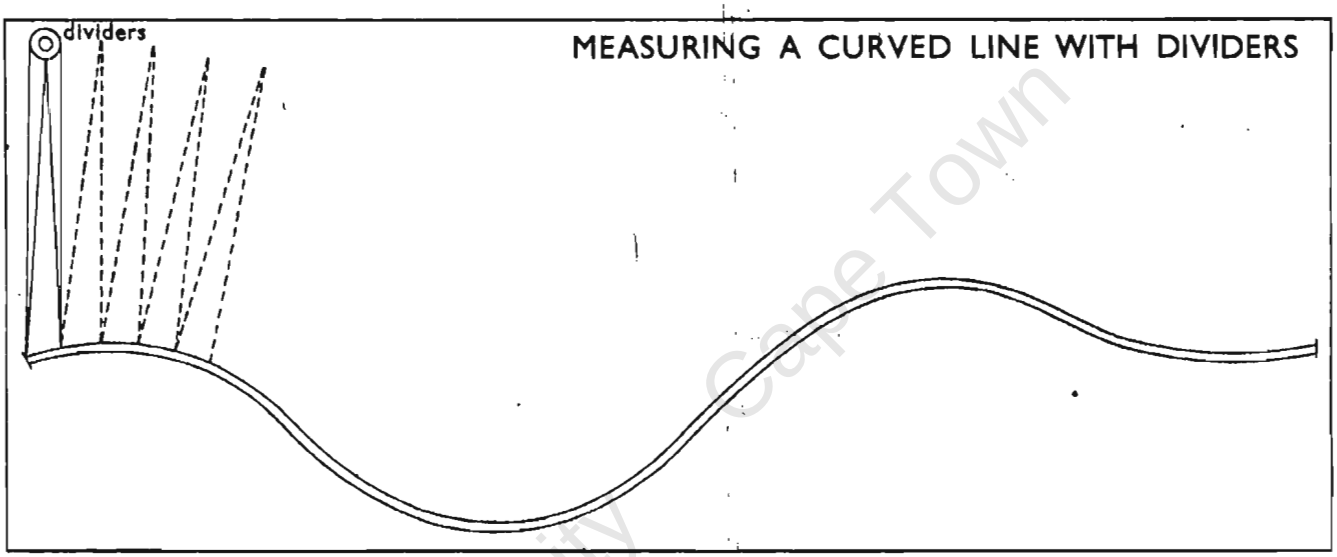
MEASURING DISTANCES ALONG LINES WHICH ARE NOT STRAIGHT

The following methods may be used:

1. Lay a piece of string along the line to be measured, following the curves carefully. Make a mark on the string with a pen or pencil where the line ends. Then lay the string against the Linear Scale and read off the distance.

2. Lay a strip of paper along the first straight section of the line to be measured. Using a sharp pencil, make a mark at the point where the line curves away. Move the paper until it fits along the second straight section and mark it. Move it again for the third, fourth, and fifth sections, and so on. The total length is recorded on the strip of paper. It can be read off on the scale.

3. Measure the line with a pair of dividers set to a short distance, so that the curved line can be measured in 'steps' which are more or less straight. Count the number of 'steps', then multiply this number by the distance between the points of the dividers.



EXERCISE 4

1. Find the R.F. of the following map scales:

   (*a*) Scale: 1 centimetre to 25 kilometres. Answer: 1 : 250 0000

   (*b*) Scale: 1 centimetre to 2 kilometres. Answer: 1 : 200000

   (*c*) Scale: 100 kilometres to 1 centimetre. Answer: 100 000 00 : 1

   (*d*) Scale: 6 kilometres to 1 centimetre. Answer: 600000 : 1

   (*e*) Scale: 1 centimetre to 100 metres. Answer: 1 : 10000

   (*f*) Scale: 4 miles to 1 inch. Answer: 1 : 253440

   (*g*) Scale: 2½ inches to 1 mile. Answer: 1 : 25 344

   (*h*) Scale: 10 miles to 1 inch. Answer: 633 600 : 1

2. Give the following Representative Fractions as Statement Scales:

   (*a*) $\frac{1}{300\,000}$ 1 cm represents 3 km

   (*b*) $\frac{1}{5\,000}$ 1 cm represents 50 m

   (*c*) $\frac{1}{1,000,000}$ 1 cm represents 10 km

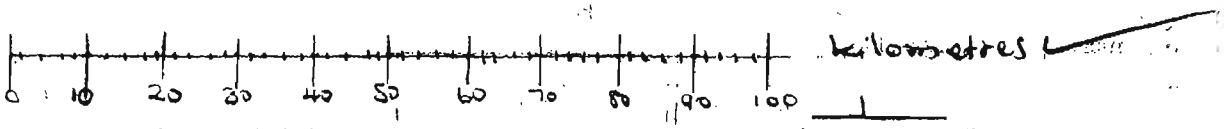
(*d*) $\frac{1}{126\,720}$ ....1 cm represents 1:2672 km.....

(*e*) $\frac{1}{250\,000}$ ....1 cm represents 25 km.....

3. If the R.F. is 1 : 25 000, what will be the number of centimetres to 1 kilometre? **Answer:** 4 cm

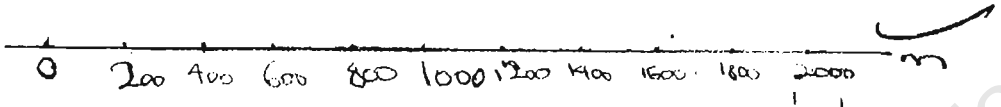
4. If the R.F. is 1 : 800 000 what will be the number of kilometres to 1 centimetre? **Answer:** 8 km

5. The scale of a map is 1 centimetre to 10 kilometres.
(*a*) Draw a Linear Scale to show a distance of 100 kilometres in the space provided.



(*b*) The R.F. is ..... 1 / 1000 000 .....

6. The scale of a map is 1 : 20 000 1 cm represent 200 m
(*a*) Draw a Linear Scale to represent 2 kilometres in the space provided.



(*b*) The scale of this map given as a Statement is ..... 1 cm represents 200 m .....

7. The scale of a map is $\frac{1}{2}$ inch to 1 mile.
(*a*) Draw a Linear Scale to show a distance of 6 miles in the space provided.

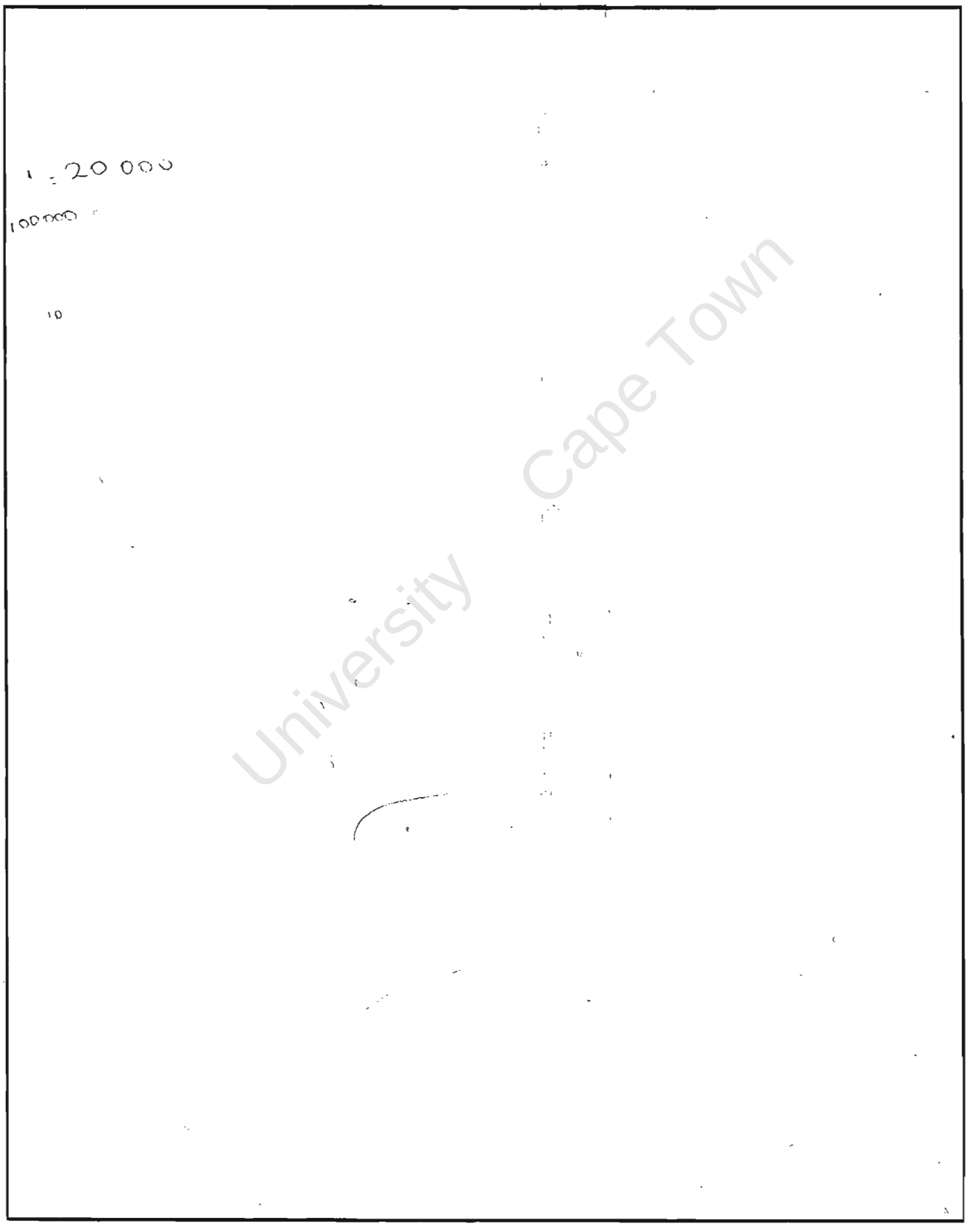
(*b*) The R.F. is ..... 1 : 31680 .....

8. The scale of a map is 1 : 50 000
(*a*) Draw a Linear Scale which measures 12 centimetres to the right of zero. Make sure you can read off a distance to the nearest 50 metres on your scale.

(*b*) The Statement Scale of this map is .....
.....

9. Define as clearly as you can each of the following terms:
(*a*) Representative Fraction: .....
.....
(*b*) Statement Scale: .....
.....
(*c*) Linear Scale: .....
.....

10. In the space below, draw a plan of your classroom. First measure the length and width of the room. Then choose a suitable scale and draw the classroom using the scale. Also show the desks or tables, according to the scale. Use metric units for your measurements and scale.



11. Study the map (plan) of the school campus shown below and answer the following questions. The scale is at the bottom of the map. Give all your answers in metres.

(*a*) What is the actual length and width of the School Hall?

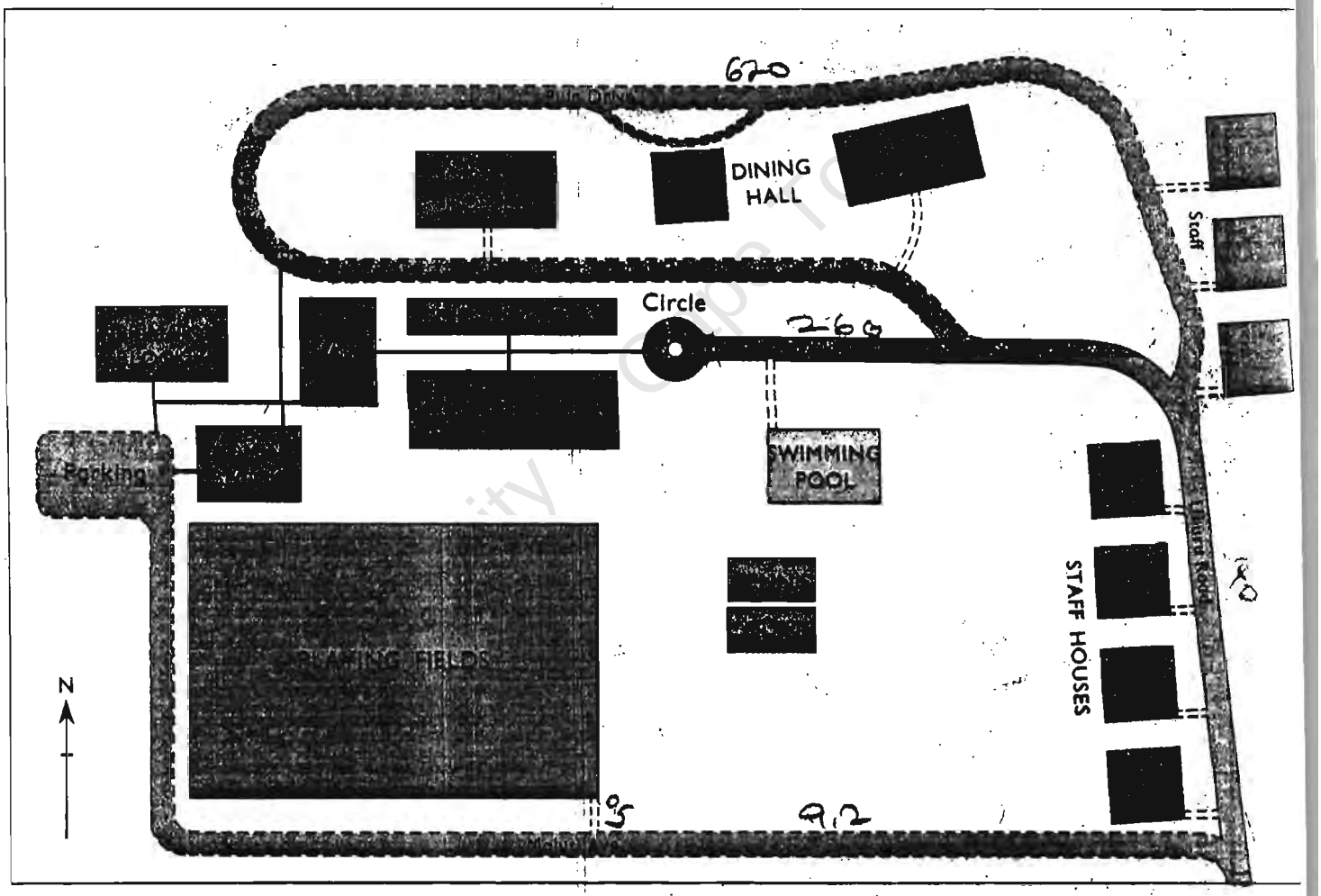
Length: 30 metres. Width: 25 metres.

(*b*) What is the actual length and width of the Swimming Pool?

Length: 32 metres. Width: 20 metres.

(*c*) Complete the following table:

Feature	Length	Width
Dining Hall	20 m	20m
Girls' Hostel	40m	20m
Primary Block	40m	22m
Science Block	60m	10m



MAP OF A SCHOOL CAMPUS

20 0 20 40 60 80 100
Metres

Tarred Road

Untarred Road

Footpath

Track

(*d*) Work out the area of the Playing Field. (Show all working) 9600 m²

.....

(*e*) What is the distance from Uhuru Road to the Playing Field via Maluti Avenue?

Distance : 192 metres.

(*f*) What is the distance along the path from the Admin. Block to Pula Drive?

Distance: 46 metres.

(*g*) Which is the longer, and by how much — Uhuru Road or Pula Drive?

Answer : Pula by 350 metres.

120
80
9600

12. Look at the map of the Transkei on this page. Use the Linear Scale to measure the following distance in kilometres.

(*a*) The road distance between Port St. Johns and Umtata. 90 kilometres.

(*b*) The road distance between Umtata and Kokstad. 157.5 kilometres.

(*c*) The road distance between Port St. Johns and Idutywa via Umtata. 150 kilometres.

(*d*) The length of the section of coastline shown on the map. ..... kilometres.

(*e*) The distance along the railway line between Umtata and Idutywa. 105 kilometres.

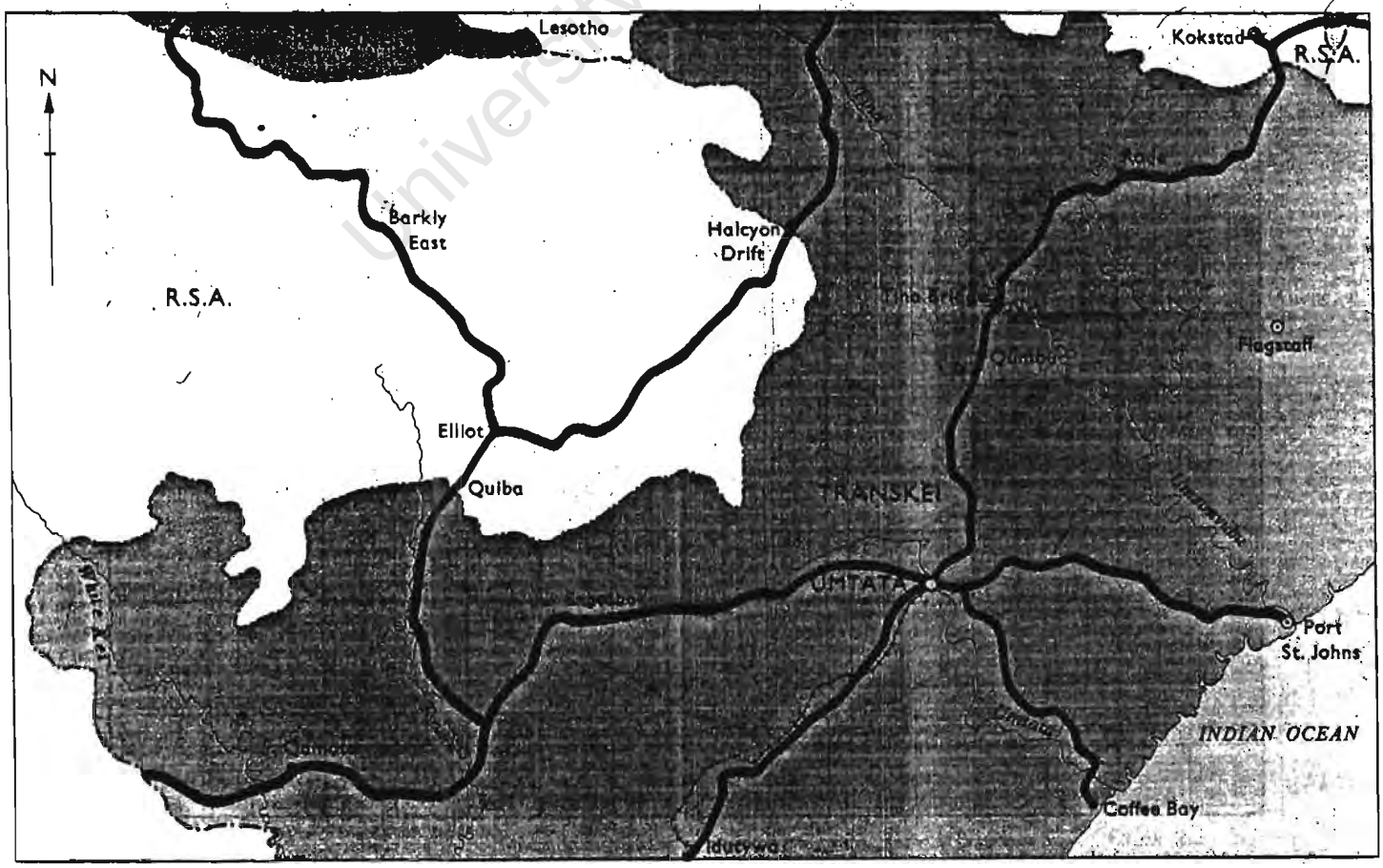
(*f*) The distance along the Umtata River between Umtata and the river-mouth near Coffee Bay. ..... kilometres.

(*g*) The distance along the Tina River between its source and Tina Bridge. ..... kilometres.

(*h*) The width of the Transkei along an East-West line drawn through Qumbu. ..... kilometres.

(*i*) The distance along the Transkei boundary between Quiba and Halcyon Drift. ..... kilometres.

(*j*) The total distance around the edge of the frame of the map. ..... kilometres.



1 - 15
10.5

CHAPTER 3 — CALCULATING AREA

If you are asked to work out the area of a map of regular shape, the exercise is an easy one. Most maps are square or rectangular. You, therefore, measure the length and width of the map, change the units from centimetres to kilometres using the scale, and multiply the two distances together.

EXAMPLES

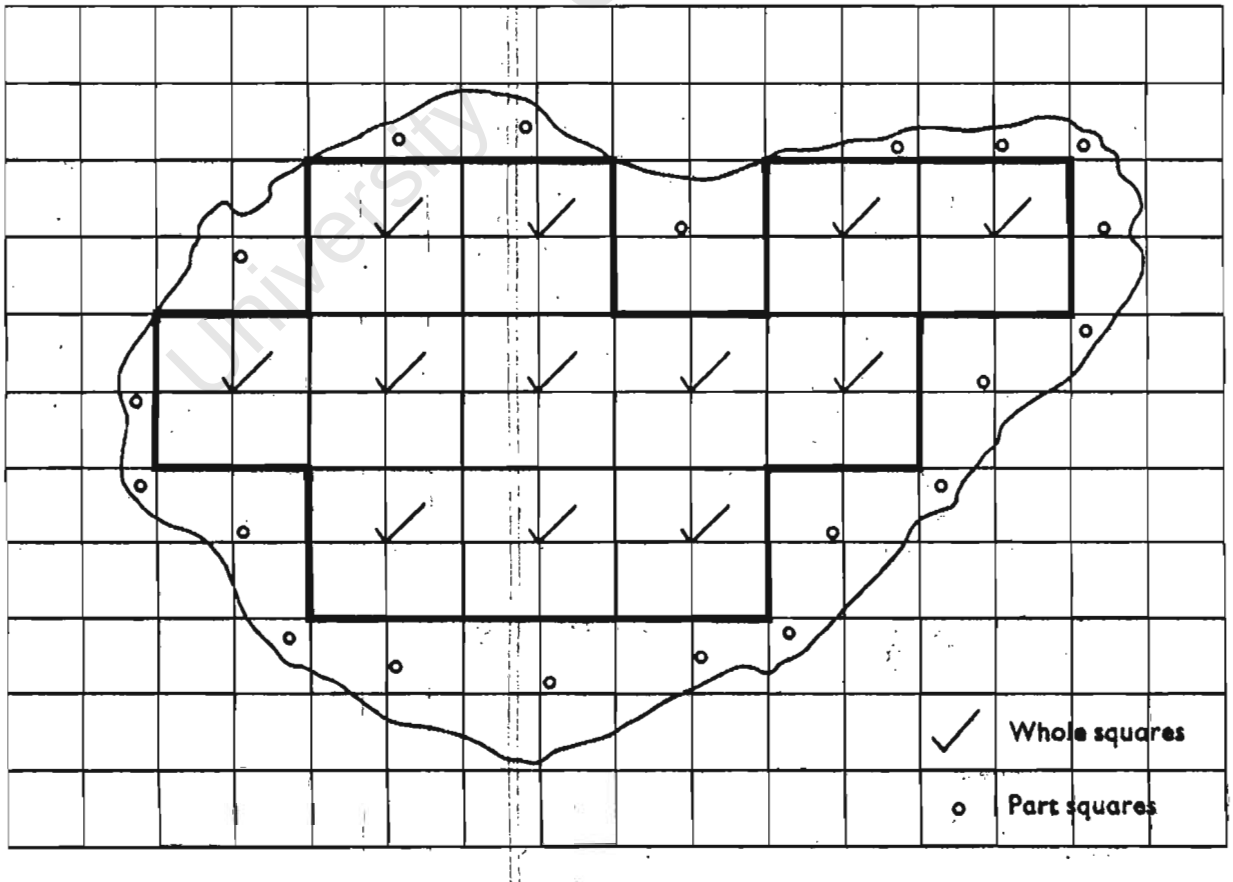
A A map measures 20×30 centimetres.
The scale of the map is 1 centimetre to $\frac{1}{2}$ kilometre.
The area of the map is $\therefore (20 \times \frac{1}{2}) \times (30 \times \frac{1}{2})$
$= 150$ square kilometres ($150\ km^2$)

B A map measures 30×40 centimetres.
The scale of the map is 1 centimetre to 2 kilometres.
The area of the map is $\therefore (30 \times 2) \times (40 \times 2)$
$= 4\,800$ square kilometres ($4\,800\ km^2$)

The area of a section of a map which is not a regular shape can be worked out using tracing paper and graph paper.

Method

1. Trace the outline of the feature or section of the map.
2. Transfer the outline to a piece of graph paper. If you are using metric units, make sure you are using metric graph paper.
3. Count the number of whole squares and part squares included on the graph paper within the outline. In the figure below, there are 12 whole squares and 20 part squares.
4. Part squares are counted as half squares, so that, in the above figure, there are altogether $12 + \frac{20}{2}$ squares, that is, 22 squares. If one whole square



Appendix 22 - 5.3 Map reading

MAP READING 7th November 2003

A map is a scaled representation of features that are on the earth's surface on the paper.

TYPES OF MAPS

The different types of maps show different types of information clearly, such that each type has a special aim or purpose.

EXAMPLES

i) A physical map - shows the altitude and physical features such as mountains, lakes, plains and rivers.

ii) Vegetation map - it shows the location of forests, scrub and savanna.

iii) Political Map - Shows the political boundaries, provinces, countries and districts.

Therefore maps are selective with regard to the information they contain.

Properties of a map

A good map should have:-

a) A title or heading

b) Key

c) Scale

d) Direction

The scale.

This is the relationship or proportion between size of the drawing and that of the ~~rural~~ real object or feature

OR

(i) MAP READING

The proportion between the distance on the map and the real distance on the ground.

This proportion can be shown by:-

a) A statement

b) Using a Representative Fraction (R.F)

c) By means of a linear (line) scale.

Statement scale gives the scale in words for example

1 centimetre to 6 metres

OR

1 centimetre represents 6 metres

In each case, the words state the distance on the map that represents a certain distance on the ground

ii) Representative Fraction (RF) scale

The proportion of distance on the map and that on the ground is shown in this form 1 : 50 000 or $\frac{1}{50\,000}$ this means 1 unit on the map stands for 50 000 of the same units on the ground

For example 1 cm : 50 000 cm or 1 inch : 50 000 inch

$\therefore$ RF = $\frac{\text{length on the map}}{\text{Distance on the ground}} = \frac{1\text{(cm)}}{50000\text{(cm)}}$

* the numerator is always one (1)

It is easy to change the statement scale into a R.F or change R.F. into the statement scale with the help of the metric scale we know

iii) Linear scale: a line is shown on the map to indicate the scale - a line is drawn on the map to indicate the scale used.

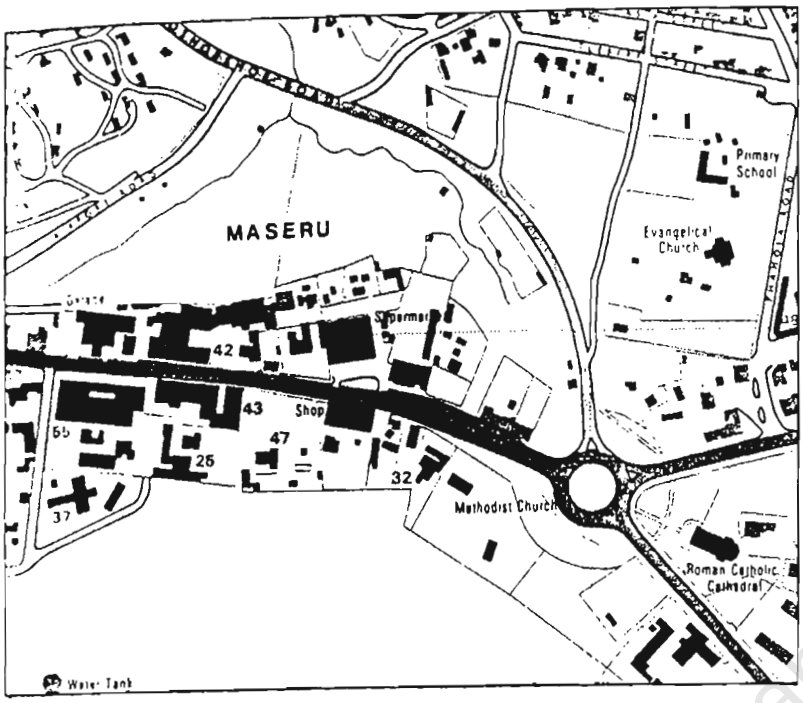
Now given R.F give the statement scales of the following

R.F	Statement scale
i) 1 : 25 000	1 centimetre represent 250 metres
ii) 1 : 50 000	" " " 2½ km
iii) 1 : 100 000	" " " 1 km
iv) 1 : 500	" " " 5 metres.

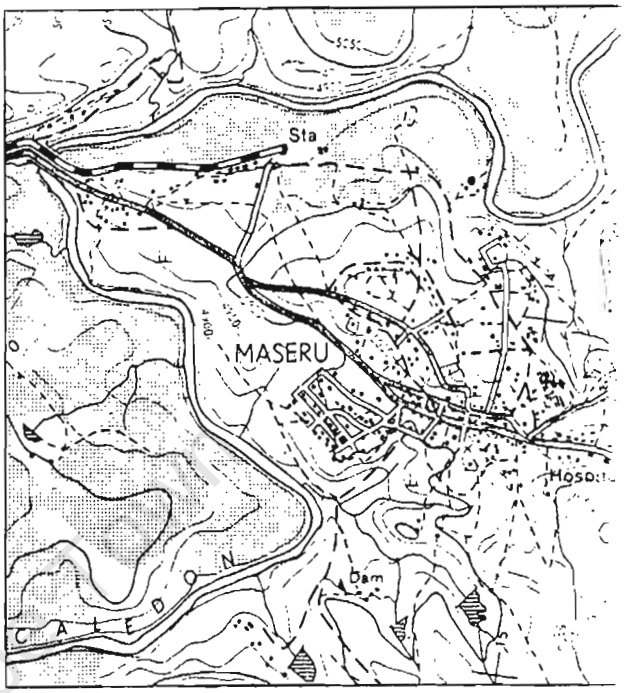
Appendix 23 : 5.5 Map reading

DETAILS SHOWN ON MAPS OF DIFFERENT SCALES

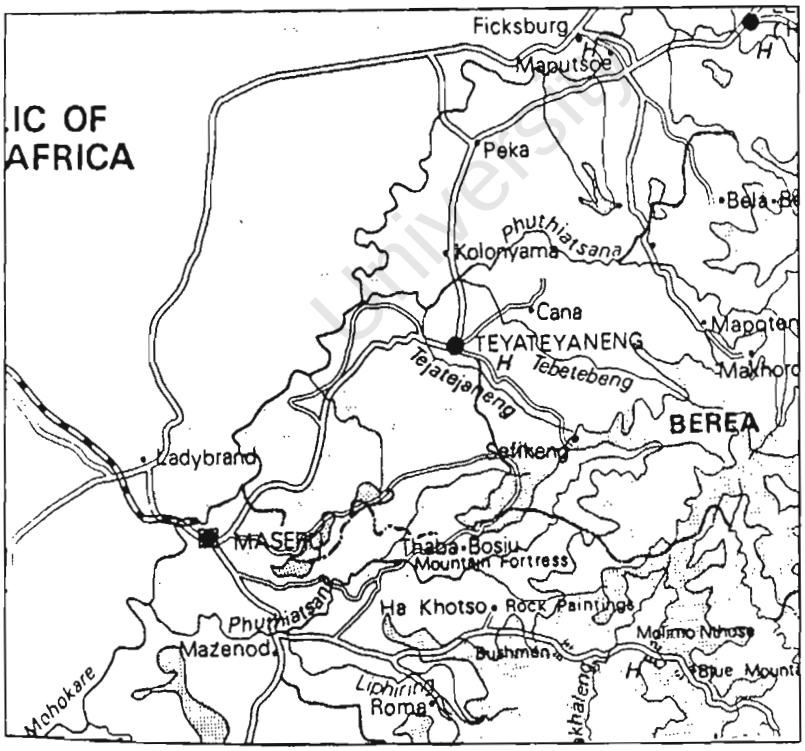
SCALE 1 : 7 500



SCALE 1 : 50 000



SCALE 1 : 750 000



SCALE 1 : 4 000 000

SOME COMMON SCALES (METRIC)

R.F.	Statement Scale
1:10 000	1 centimetre to $\frac{1}{10}$ kilometre (or 100 metres)
1:25 000	1 centimetre to $\frac{1}{4}$ kilometre (or 250 metres)
1:50 000	1 centimetre to $\frac{1}{2}$ kilometre (or 500 metres)
1:100 000	1 centimetre to 1 kilometre
1:250 000	1 centimetre to $2\frac{1}{2}$ kilometres

EXAMPLES

A If the R.F. is given, work out the Statement Scale using metric units.

Given: R.F. is 1:50 000 or $\frac{1}{50\,000}$

This means that 1 centimetre on the map represents 50 000 centimetres on the ground.
100 000 centimetres = 1 kilometre
$\therefore$ 50 000 centimetres = $\frac{1}{2}$ kilometre
The Statement Scale is:
1 centimetre represents $\frac{1}{2}$ kilometre (or 500 metres).

B If the R.F. is given, work out the Statement Scale using metric units.

Given: R.F. is 1:250 000 or $\frac{1}{250\,000}$

This means that 1 centimetre on the map represents 250 000 centimetres on the ground.
100 000 centimetres = 1 kilometre

$\therefore$ 250 000 centimetres $= \frac{250\,000}{100\,000}$
$= 2\frac{1}{2}$ kilometres

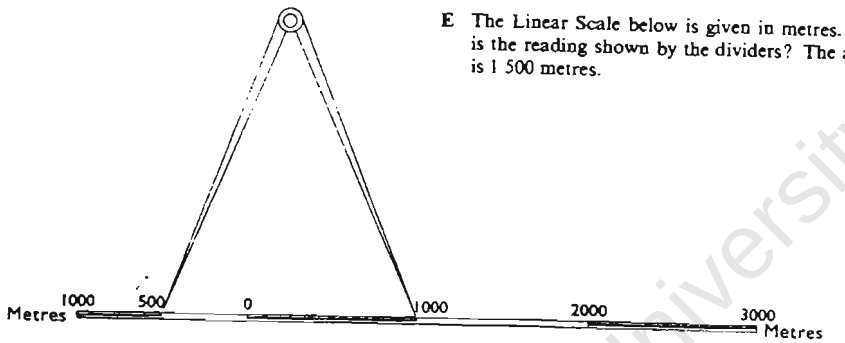
The Statement Scale is:
1 centimetre to $2\frac{1}{2}$ kilometres.

C If the Statement Scale is given, find the R.F.
Given: The scale is 1 centimetre to $\frac{1}{4}$ kilometre
1 kilometre = 100 000 centimetres.

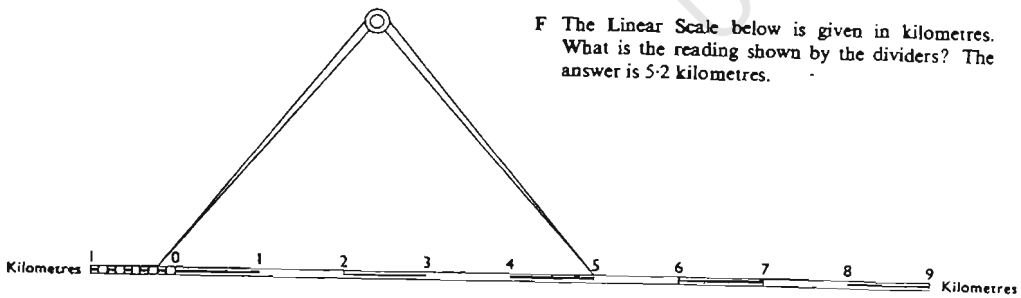
$\frac{1}{4}$ kilometre $= \frac{100\,000}{4}$
$= 25\,000$ centimetres.
$\therefore$ 1 centimetre represents 25 000 centimetres
The R.F. is $\frac{1}{25\,000}$ or 1:25 000

D If the Statement Scale is given, find the R.F.
Given: The scale is 5 miles to 1 inch.
1 mile = 63 360 inches
5 miles = 63 360 × 5 inches
= 316 800 inches
1 inch $\therefore$ represents 316 800 inches on this scale.
The R.F. is 1:316 800 or $\frac{1}{316\,800}$

E The Linear Scale below is given in metres. What is the reading shown by the dividers? The answer is 1 500 metres.



F The Linear Scale below is given in kilometres. What is the reading shown by the dividers? The answer is 5·2 kilometres.



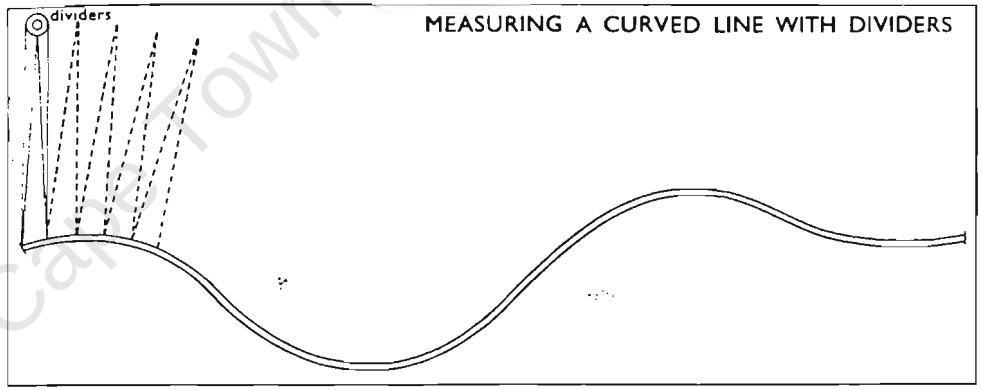
MEASURING DISTANCES ALONG LINES WHICH ARE NOT STRAIGHT

The following methods may be used:

1. Lay a piece of string along the line to be measured, following the curves carefully. Make a mark on the string with a pen or pencil where the line ends. Then lay the string against the Linear Scale and read off the distance.

2. Lay a strip of paper along the first straight section of the line to be measured. Using a sharp pencil, make a mark at the point where the line curves away. Move the paper until it fits along the second straight section and mark it. Move it again for the third, fourth, and fifth sections, and so on. The total length is recorded on the strip of paper. It can be read off on the scale.

3. Measure the line with a pair of dividers set to a short distance, so that the curved line can be measured in 'steps' which are more or less straight. Count the number of 'steps', then multiply this number by the distance between the points of the dividers.



EXERCISE 4

1. Find the R.F. of the following map scales:

(a) Scale: 1 centimetre to 25 kilometres. Answer: 1: 2500000 ✓
(b) Scale: 1 centimetre to 2 kilometres. Answer: 1: 200000 ✓
(c) Scale: 100 kilometres to 1 centimetre. Answer: 1: 10000000 ✓
(d) Scale: 6 kilometres to 1 centimetre. Answer: 1: 600000 ✓
(e) Scale: 1 centimetre to 100 metres. Answer: 1: 10000 ✓ 5
(f) Scale: 4 miles to 1 inch. Answer:
(g) Scale: $2\frac{1}{2}$ inches to 1 mile. Answer: 6
(h) Scale: 10 miles to 1 inch. Answer:

2. Give the following Representative Fractions as Statement Scales: ✓

(a) $\frac{1}{300\,000}$ 1 cm represents 3 kilometres ✓ 3
(b) $\frac{1}{5\,000}$ 1 cm represents 50 metres ✓ 4
(c) $\frac{1}{1\,000\,000}$ 1 cm represents 10 kilometres
= 10 kilometres
1 cm represents 10 000 metres

(d) $\frac{1}{126\,720}$ .....

(e) $\frac{1}{250\,000}$ 1cm represents 2.5 km

3. If the R.F. is 1 : 25 000, what will be the number of centimetres to 1 kilometre? Answer: 4

4. If the R.F. is 1 : 800 000 what will be the number of kilometres to 1 centimetre? Answer: 8

5. The scale of a map is 1 centimetre to 10 kilometres.
   (a) Draw a Linear Scale to show a distance of 100 kilometres in the space provided.

   (b) The R.F. is 1 / 100 000

6. The scale of a map is 1 : 20 000
   (a) Draw a Linear Scale to represent 2 kilometres in the space provided.

   (b) The scale of this map given as a Statement is .....

7. The scale of a map is $\frac{1}{2}$ inch to 1 mile.
   (a) Draw a Linear Scale to show a distance of 6 miles in the space provided.

   (b) The R.F. is .....

8. The scale of a map is 1 : 50 000
   (a) Draw a Linear Scale which measures 12 centimetres to the right of zero. Make sure you can read off a distance to the nearest 50 metres on your scale.

   (b) The Statement Scale of this map is .....
   .....

9. Define as clearly as you can each of the following terms:
   (a) Representative Fraction: .....
   .....
   (b) Statement Scale: .....
   .....
   (c) Linear Scale: .....
   .....

10. In the space below, draw a plan of your classroom. First measure the length and width of the room. Then choose a suitable scale and draw the classroom using the scale. Also show the desks or tables, according to the scale. Use metric units for your measurements and scale.

1cm represents a $\frac{1}{4}$ km
= 1 : 250
= 1 : 25000 $\frac{1}{25000} = \frac{100\,000}{4}$

1cm represents half a metre
1 : 50

1cm represents 2 kilometre
1 : 2 km
1 : 200 000
100 000 x 2 = 200 000

1cm represents $\frac{1}{2}$ Metre
1 : 7.5
1 : 750

a) The scale 1 : 25000. Draw the line of 3 km
b) The scale of the map is 1 : 500000. Draw a line of 5 km
c) The scale of the map is 1cm represents 4000m
Draw a line of 4 km
d) The scale is 1cm represents one kilometer. Draw a line of 12 km

11. Study the map (plan) of the school campus shown below and answer the following questions. The scale is at the bottom of the map. Give all your answers in metres.

(a) What is the actual length and width of the School Hall?

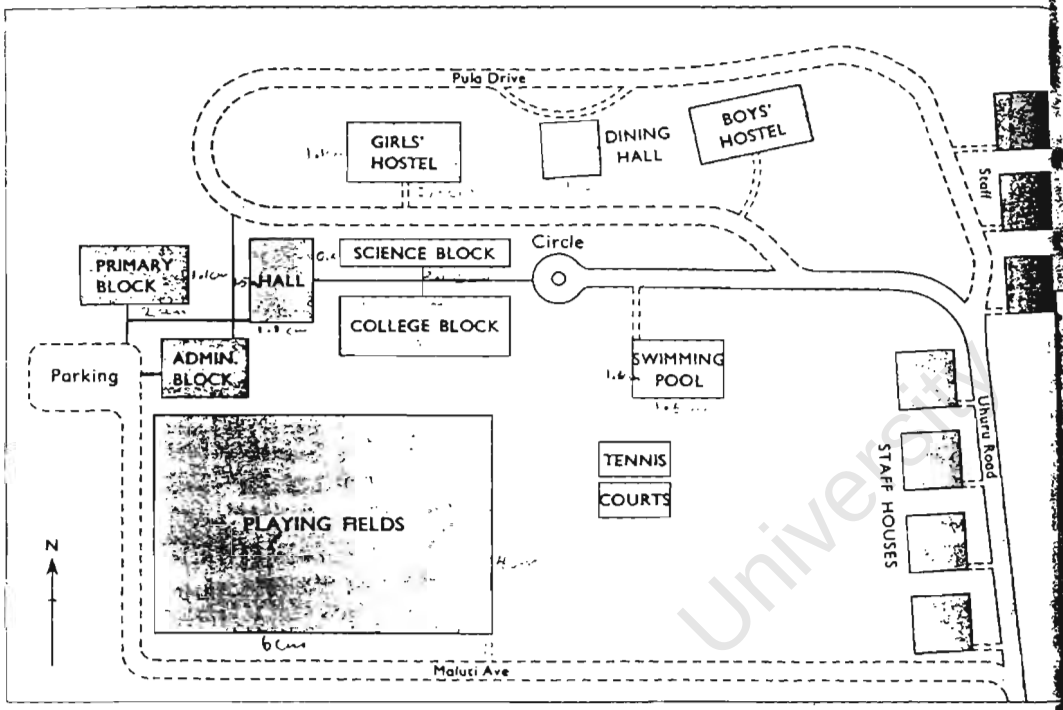
Length: 22 metres. Width: 36 metres.

(b) What is the actual length and width of the Swimming Pool?

Length: 3 metres. Width: 2 metres.

(c) Complete the following table:

Feature	Length	Width
Dining Hall		
Girls' Hostel		
Primary Block		
Science Block		



MAP OF A SCHOOL CAMPUS

20 0 20 40 60 80 100
Metres

Tarred Road
Untarred Road
Footpath
Track

(d) Work out the area of the Playing Field. (Show all working) Area = L x W

120 x 80 = 9600 m²

(e) What is the distance from Uhuru Road to the Playing Field via Maluti Avenue?

Distance: 160 metres. 192

(f) What is the distance along the path from the Admin. Block to Pula Drive?

Distance: 40 metres.

(g) Which is the longer, and by how much — Uhuru Road or Pula Drive?

Answer: Pula Drive by 240 metres.

12. Look at the map of the Transkei on this page. Use the Linear Scale to measure the following distance in kilometres.

(a) The road distance between Port St. Johns and Umtata. 75 kilometres.

(b) The road distance between Umtata and Kokstad. 120 kilometres.

(c) The road distance between Port St. Johns and Idutywa via Umtata. 143 kilometres.

(d) The length of the section of coastline shown on the map. 9 kilometres.

(e) The distance along the railway line between Umtata and Idutywa. 95 kilometres.

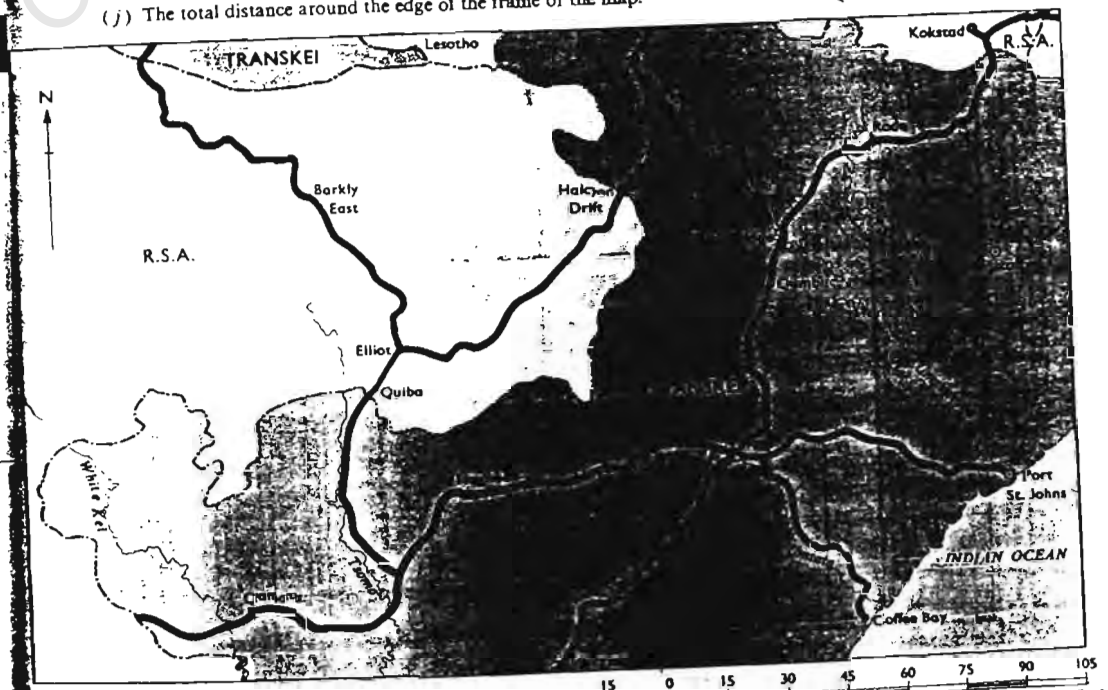
(f) The distance along the Umtata River between Umtata and the river-mouth near Coffee Bay. 94 kilometres.

(g) The distance along the Tina River between its source and Tina Bridge. 147 kilometres.

(h) The width of the Transkei along an East-West line drawn through Qumbu. 164 kilometres.

(i) The distance along the Transkei boundary between Quiba and Halcyon Drift. 96 kilometres.

(j) The total distance around the edge of the frame of the map. 474 kilometres.



CHAPTER 3 — CALCULATING AREA

If you are asked to work out the area of a map of regular shape, the exercise is an easy one. Most maps are square or rectangular. You, therefore, measure the length and width of the map, change the units from centimetres to kilometres using the scale, and multiply the two distances together.

EXAMPLES

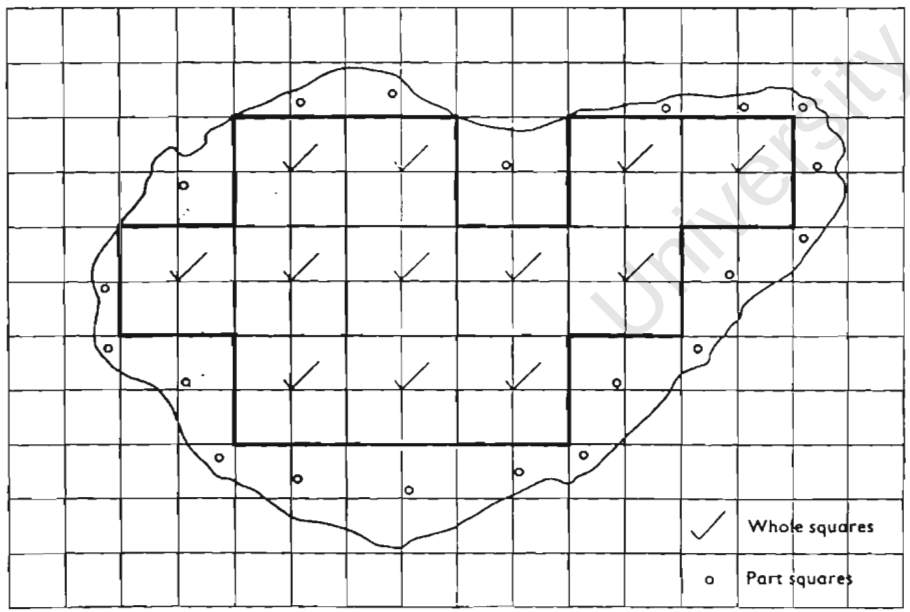
A A map measures 20 × 30 centimetres.
The scale of the map is 1 centimetre to $\frac{1}{2}$ kilometre.
The area of the map is $\therefore (20 \times \frac{1}{2}) \times (30 \times \frac{1}{2})$
$= 150$ square kilometres (150 km^2)

B A map measures 30 × 40 centimetres.
The scale of the map is 1 centimetre to 2 kilometres.
The area of the map is $\therefore (30 \times 2) \times (40 \times 2)$
$= 4\,800$ square kilometres (4 800 km^2)

The area of a section of a map which is not a regular shape can be worked out using tracing paper and graph paper.

Method

1. Trace the outline of the feature or section of the map.
2. Transfer the outline to a piece of graph paper. If you are using metric units, make sure you are using metric graph paper.
3. Count the number of whole squares and part squares included on the graph paper within the outline. In the figure below, there are 12 whole squares and 20 part squares.
4. Part squares are counted as half squares, so that, in the above figure, there are altogether $12 + \frac{20}{2}$ squares, that is, 22 squares. If one whole square represents 1 square kilometre, the total area will be 22 square kilometres.



A more accurate way of working out irregular areas, for example, your school, home district, or farm, is to count all the small squares on the graph paper. The method is the same but in this case hundreds of whole and part squares have to be counted.

Note

On metric graph paper, one large square measures 2 × 2 centimetres.

If the scale of a map is 1 centimetre to $\frac{1}{2}$ kilometre, each large square is equivalent to 1 square kilometre (1 km^2) of land. If a scale of 1 centimetre to 1 kilometre is used, then each large square represents 4 square kilometres (4 km^2) of land.

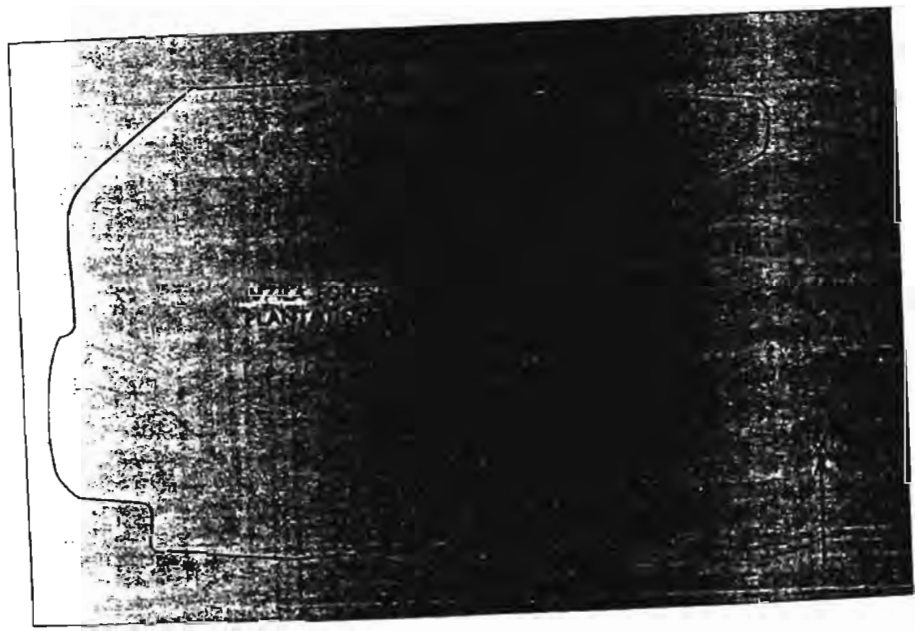
EXAMPLE

The scale of a map is 1:25 000, or 1 centimetre to $\frac{1}{4}$ kilometre. The large squares on the graph paper being used measure 2 × 2 centimetres. What is the area of land within one large square of graph paper?

1 centimetre represents $\frac{1}{4}$ kilometre.
$\therefore$ 2 centimetres represent $\frac{1}{2}$ kilometre.
The area of a square measuring 2 × 2 centimetres is $\frac{1}{2} \times \frac{1}{2}$ kilometre $= \frac{1}{4}$ square kilometre (0·25 km^2)

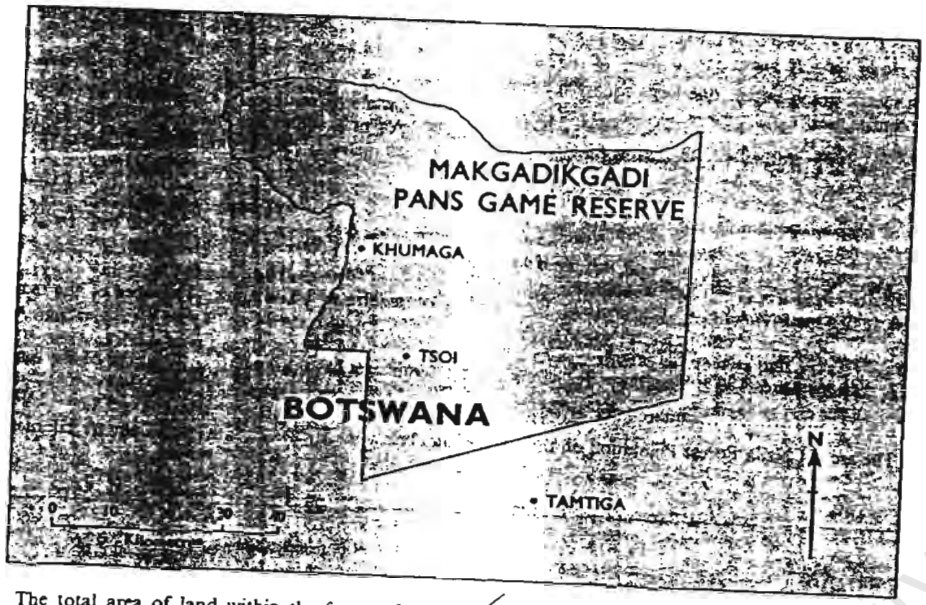
EXERCISE 5

1. A map measures 60 × 40 centimetres. Its scale is 1 centimetre to $\frac{1}{2}$ kilometre. The area of the map is ..... square kilometres.
2. A map measures 100 × 80 centimetres. Its scale is 1 centimetre to 10 kilometres. The area of the map is ..... square kilometres.
3. The area of Nzila Forest Plantation on the outline map below is ..... square kilometres.

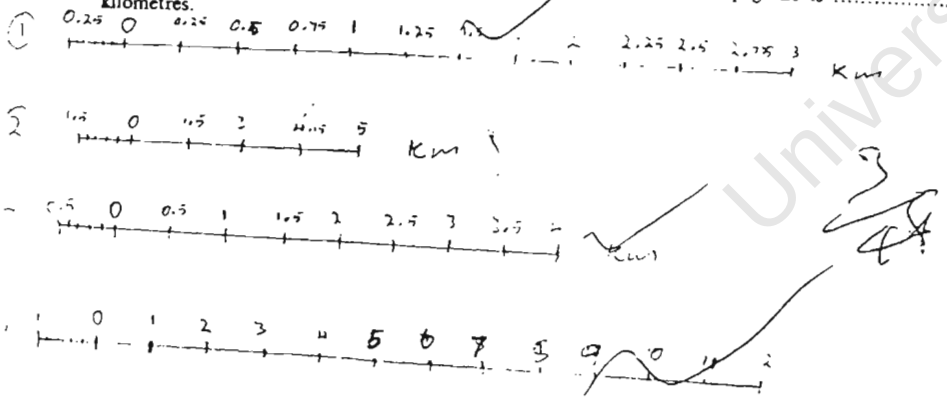


4. Using ordinary metric graph paper and the method explained above, you count 20 whole squares and 12 part squares. If the scale of the map is 1 centimetre to $\frac{1}{2}$ kilometre, the area of the section of the map is ..... square kilometres.

5. From your calculations, the total area of the Makgadikgadi Pans Game Reserve in Botswana is ..... square kilometres.



6. The total area of land within the frame of the map of Gaborone on page 26 is ..... square kilometres.

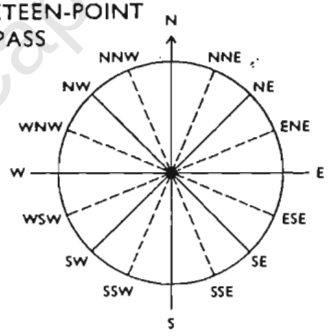


CHAPTER 4 — DIRECTIONS

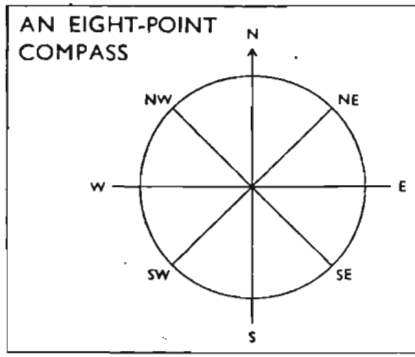
Directions must be shown on a map. The usual way is to show North by means of an arrow pointing to the North. On most maps, the North line or arrow is placed on one side of the map or in the key-box with the map symbols. Most maps are aligned with North. In other words, with the map in front of you, the North line points away from you along the sheet (look at the various examples in the book). You can find where North is by using an instrument known as a compass. Try to have a look at an actual compass. You will see that the compass points are written on a circular disc, called the compass card. The compass card has four main points: North, South, East, and West. In an eight-point compass, the North-east, South-east, North-west, and South-west directions are shown as well. This can be further divided to produce a 16-point compass. Remember that a compass needle always points to the North. If you know where North is, then you know all the other directions as well.

Most modern compasses give directions by means of degrees as well as compass points. Degrees are often shown on the inner circle of the compass card, as in the one shown here. The inner circle is divided into 360 units and each of these is called a *degree* (degrees themselves are divided into 60 smaller units

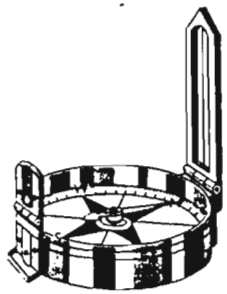
A SIXTEEN-POINT COMPASS

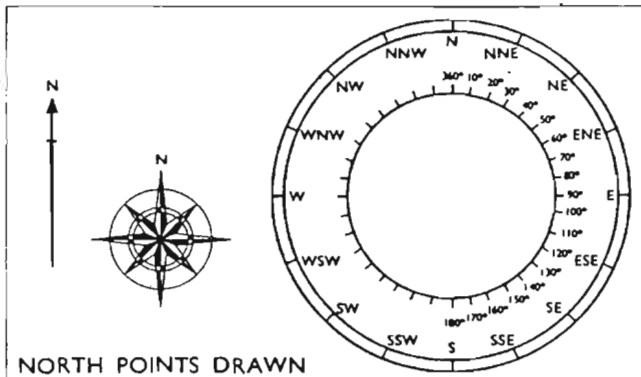


AN EIGHT-POINT COMPASS



A COMPASS INSTRUMENT





NORTH POINTS DRAWN ON MAPS AND DIRECTIONS ON A COMPASS CARD

Appendix 24 – S.6 Map reading

23/02/04

Map reading

A map is a scaled representation of the earth surface on a flat surface such as paper, showing desired features.

Types of maps

Since there is a great variety of information that a map can show not all information on the earth is shown on one map. The maps have a variety of purposes depending

Types of maps

Since there is a variety of information on earth to be shown not all the information shown on one map. Thus maps have a variety of purposes depending on what they are showing.

There are – Political maps
– weather maps
– road maps
– population maps
– Vegetation maps
– relief maps
and others

Basic principles of map reading → These relate to those essential factors that are to be considered in reading the maps.

These are as follows:

- Map title:
  It tells what the map is all about. It usually appears at the top of the page or sheet on which the map is drawn.

- Key: All maps have a special language of symbols to show information. A map symbol, such as a colour, a line, a dot or even a small picture represents something on earth. A key thus shows the meaning of the symbols used on the map. The key usually appears in the box.

- scale: On a map tells how many kilometres on the earth are representing / represented by certain units on the map. Thus the scale of a map is the relationships between the distance on a map and the actual distance on the ground.

Three ways in which a map scale is shown.
- statement scale
- representative fraction scale (RF)
- linear scale

Statement scale:-
In this case words are used to express the scale e.g. 1 centimetre on the

map represents $\frac{1}{4}$ kilometre on the gro

It could also be said that 1cm to $\frac{1}{4}$ k

Representative Fraction (RF) :-

A representative fraction can be given either by a fracti ratio e.g 1 : 50 000 or $\frac{1}{50000}$. This m that 1 unit on the map represents / sta for 50 000 of the same units on the gro Both the ~~number~~ ~~ratio~~ numerator and t denominator should have the same units measurement.

SETTLEMENTS

Settlement is a word used ~~for~~ to ~~refer~~ to the used for the purpose of human habitation provision of services.

There are various ways in which settlement is classified / categorized.

- They are classified according to their siz
- They are classified by their function.
- " " " according to their spacio pattern.

Example of settlements classified accordin the size :- - Hamlet - Conurbation
- Village - metropolis
- town - city.

Appendix 25 - 5.7 Map reading

MAP READING

MAP: is a representation of the actual ground (earths surface) on the paper.

- Objects on the real landscape are shown on a paper.

Difference of between a map and a photograph

- the former only shows us those features/objects the mapper wants to show. The latter will show even those that the mapper did not want to appear or be shown.

Types of MAPS

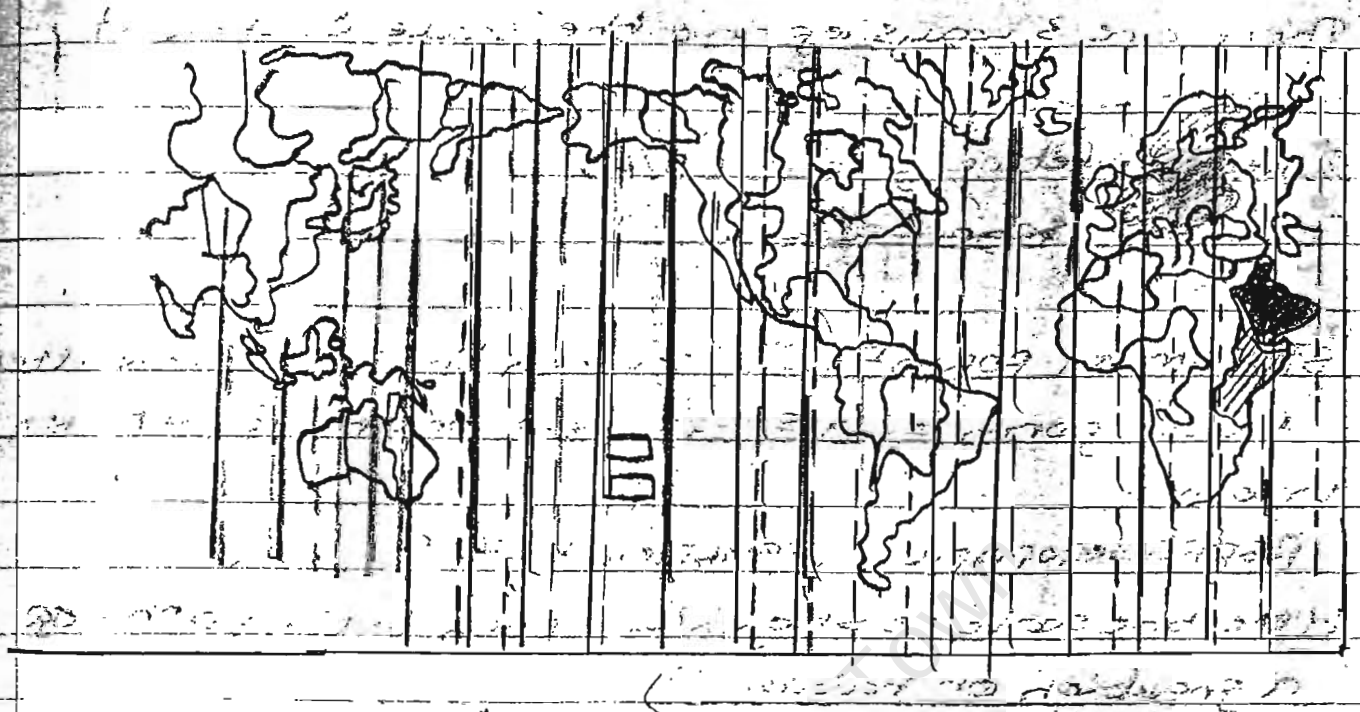
TOPOGRAPHY map: this is the map which shows almost every detail or feature of an area or place

Political map - shows countries and their boundries with towns and cities.

Physical/Relief map: shows the physical feature or the relief of an area or place such as mountains, valleys, rivers, minerals, etc

Vegetation map: shows different plants formed in an area - plants/trees of a place

Population map: shows the distribution and patterns of population in a place



Synoptic maps/ weather charts: these shows the weather distribution in a place, the rainfall patterns, temperature distribution.

FEATURES OF MAP

A map cannot be one if lacks title, key, scale, direction.

TITLE: this tells what this all about or the location of that map/place

KEY: these are signs/symbols written on a map to tell what they represent

SCALE: is the proportion distance on the map representing that on the real or actual ground (earth's surface)

DIRECTION: this directs of shows the map reader the way where place is situated or located

WAYS OF SHOWING A SCALE ON MAP

There are 3 ways of how the scale is shown;

1, Statement form

2, Representative fraction (R/F)

3, Linear ~~school~~ scale

STATEMENT FORM: this is when the scale is written in the form of a statement or when is written in words.

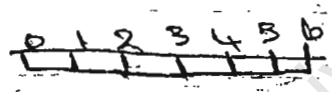
REPRESENTATIVES FRACTION: (R/F)

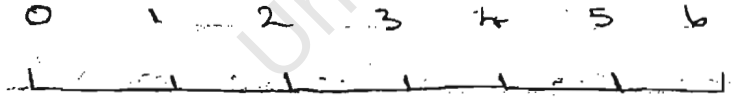
Here the scale is shown/written in the form of a fraction or ratio.

LINEAR-SCALE: here is in the form of a line

Example: 1 cm the map represents 2 km on the ground.

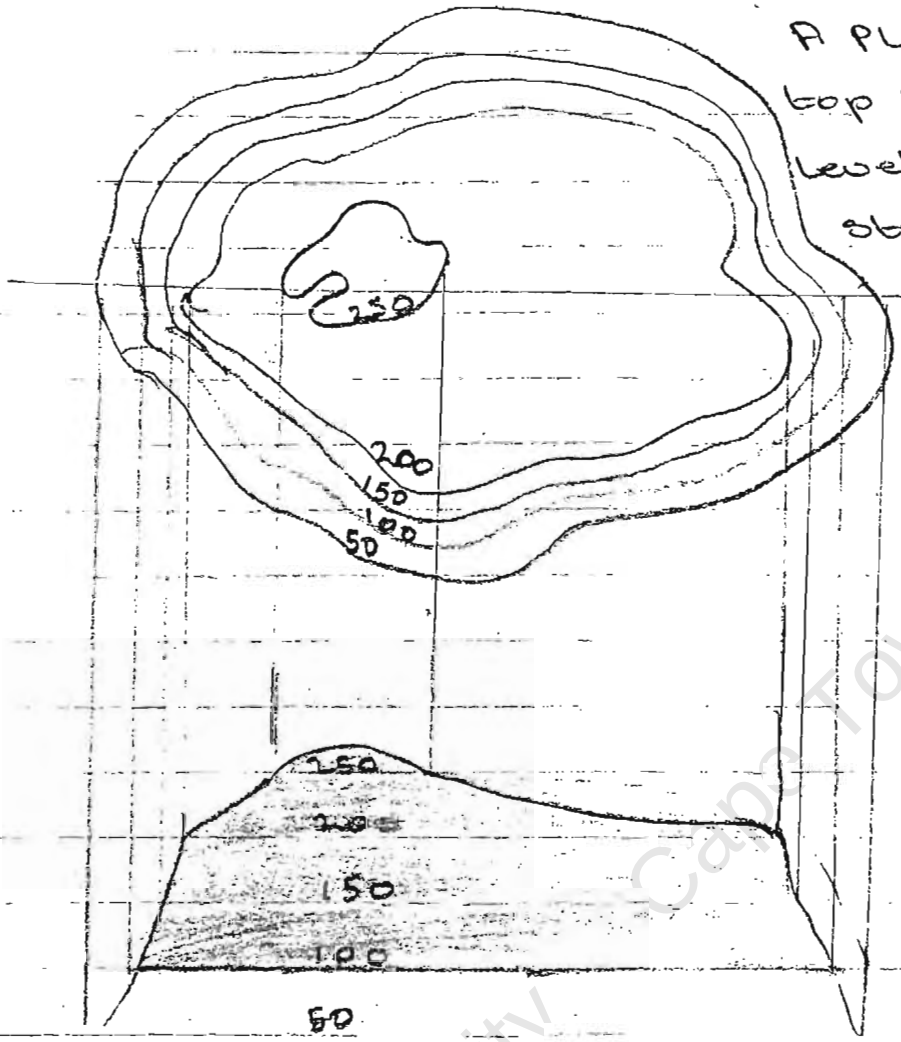
→ R/R = 200 000 or 1:200 000





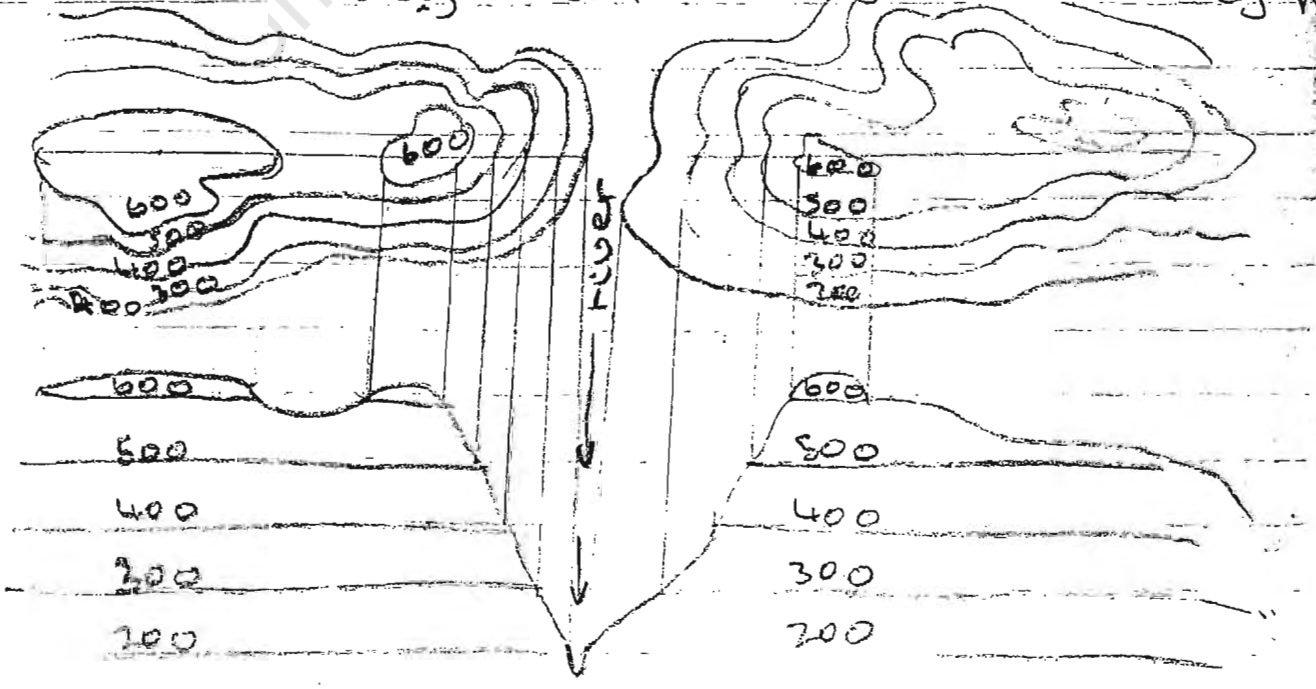
A PLATEAU

A PLATEAU is the top is flat or almost level. Slopes are general steep.



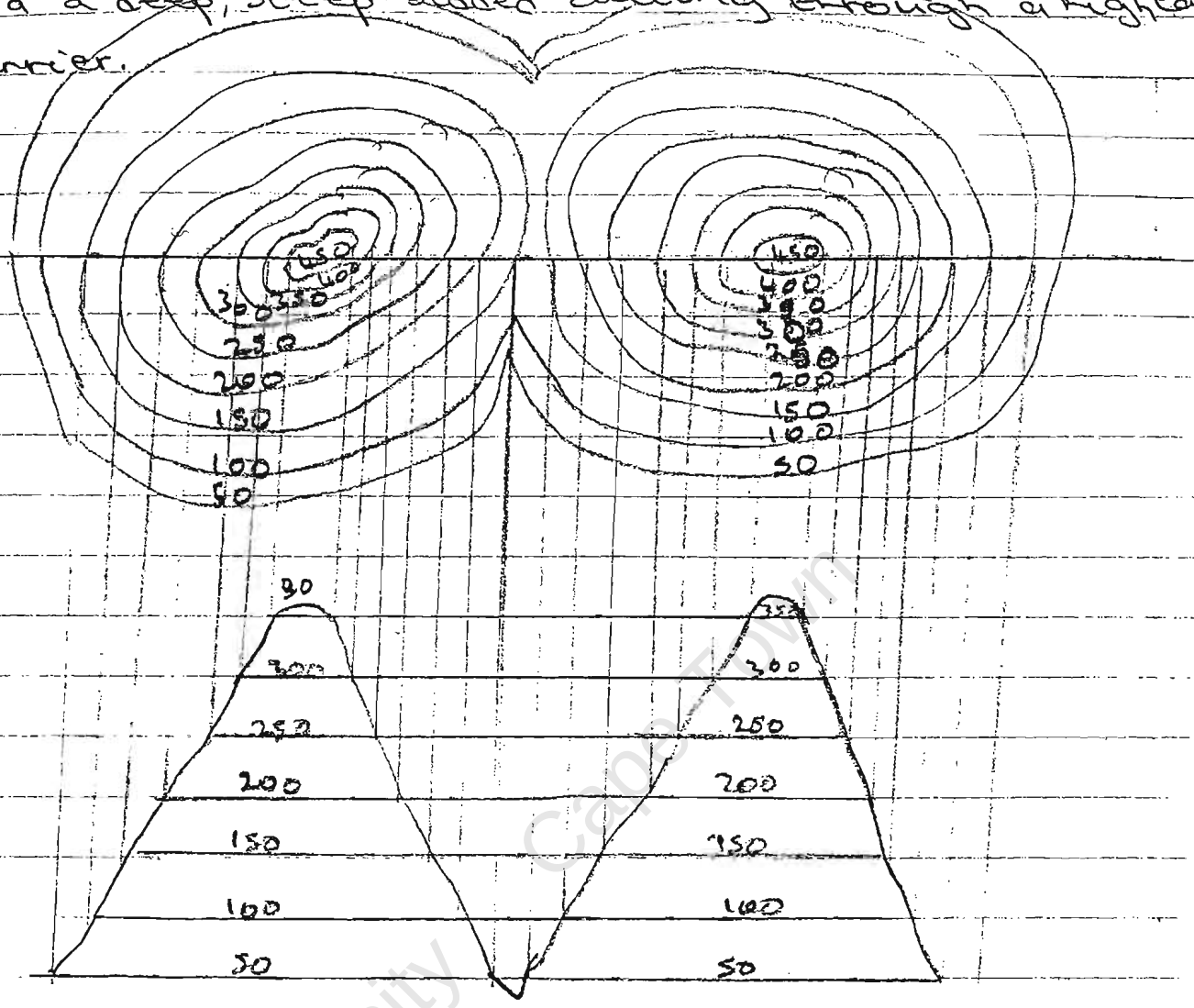
A RIVER GAP

is a low-level valley which cuts right across a ridge of highland



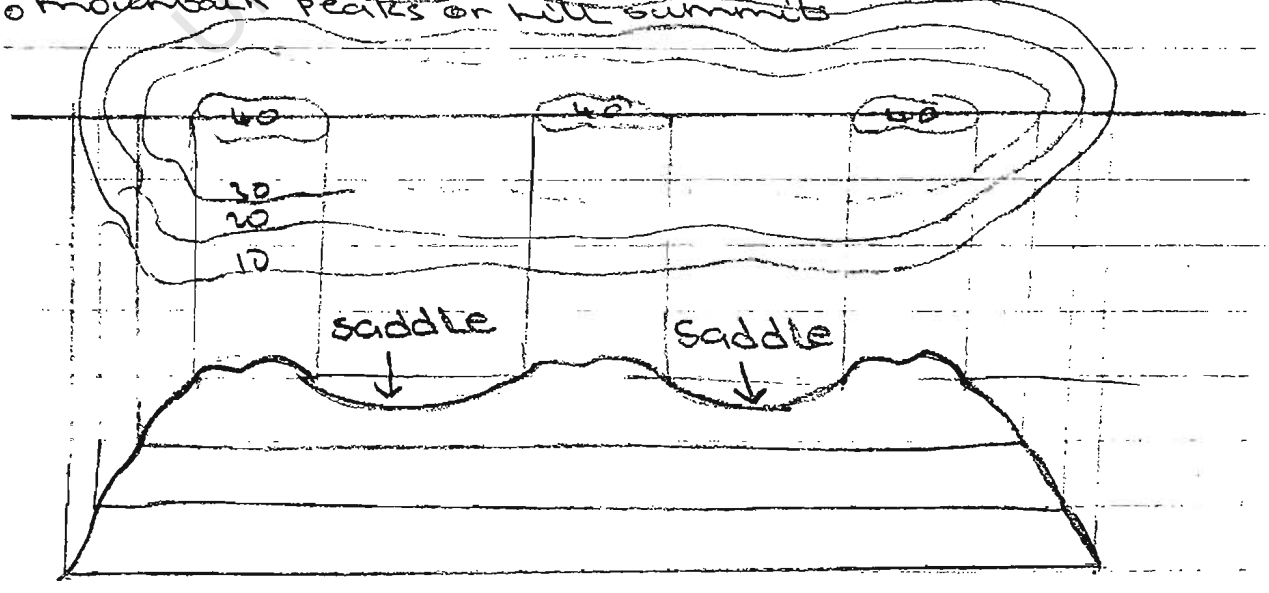
A PASS

Is a a deep, steep-sided cutting through a higher barrier.



A SADDLE

is a shallow depression or area of lower land between two mountain peaks or hill summits



Appendix 26

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

DEVELOPMENT STUDIES **2271/01**

Paper 1

October/November 2003

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

SJF2622/PW S33009/2

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[Turn over

1 What is meant by *services*? Choose **three** different types of services (other than transport) and explain why they are important for economic growth. [4]

2 What is meant by *primary health care*? Suggest **three** features that you would expect to find in a primary health care programme. [4]

3 What is meant by *democracy*? Describe **three** of the features of a democracy. [4]

4 What is meant by *international aid*? Describe **three** different forms of international aid that might be given to a country and, for each, explain why it might be given. [4]

5 What is meant by *sustainable development*? Suggest **three** ways that people can help to achieve sustainable development. [4]

6 Study Fig. 1 which shows the GNP of selected countries and the total sales of some multinational (transnational) companies.

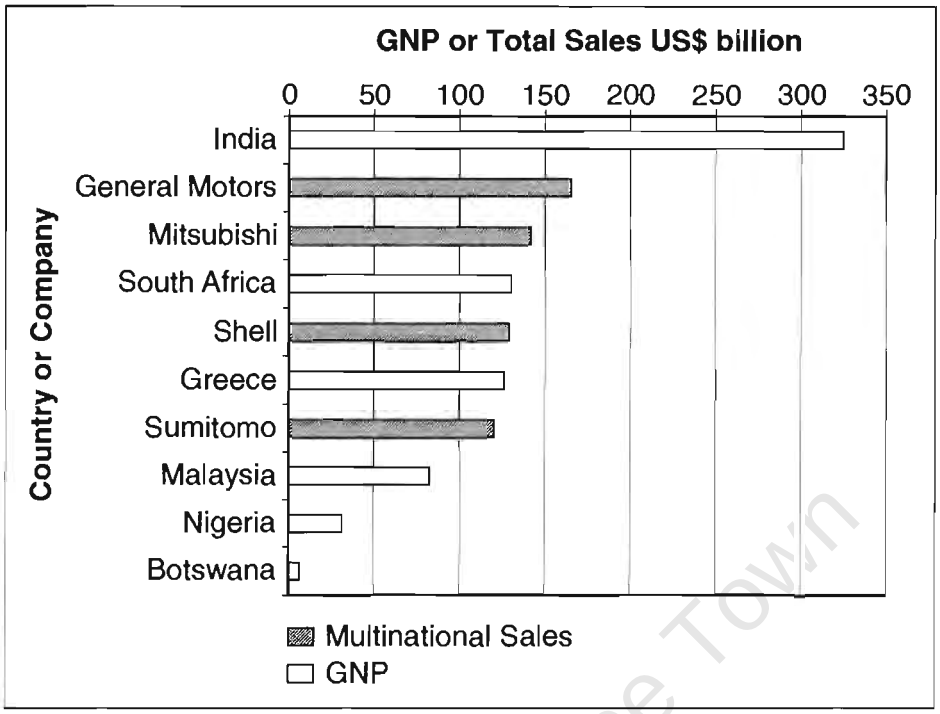

Fig. 1

(a) **(i)** What do the letters *GNP* stand for? [1]

(ii) What is meant by a *multinational* (transnational) company? [1]

(iii) Name **one** multinational which has larger total sales than the GNP of South Africa. [1]

(b) Explain the function of multinational companies in international trade. [1]

(c) Suggest **three** reasons why the governments of developing economies try to attract multinational companies to invest in their countries. [3]

(d) Suggest **three** reasons why investment by multinational companies in developing countries may not be in the interests of those countries. [3]

[10 marks]

7 Study Fig. 2 which shows the problems of poor people in rural areas in developing countries and answer the following questions.

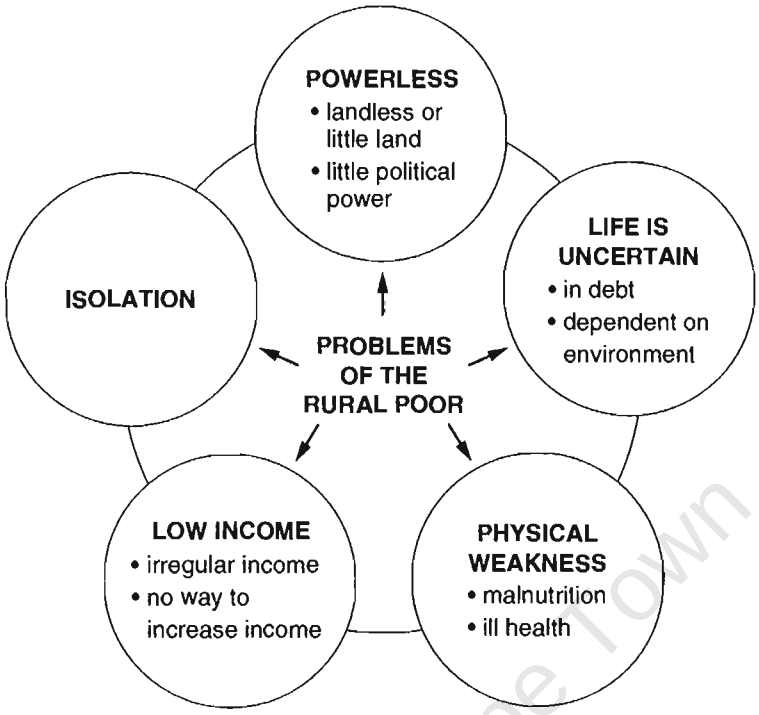

Fig. 2

(a) What is meant by *malnutrition*? [1]

(b) Suggest **two** reasons why poor people in rural areas may get into debt. [2]

(c) Suggest **two** reasons why poor people in rural areas are affected by isolation. [2]

(d) Suggest **two** reasons why poor people have little political power. [2]

(e) **(i)** Explain why poor people in rural areas may have no way of increasing their income. [1]

(ii) Suggest ways in which their governments might help to improve the incomes of poor people in rural areas. [2]

[10 marks]

Appendix 27

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

DEVELOPMENT STUDIES **2271/02**

Paper 2

October/November 2003

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions. Answer Question 1 and any **two** other questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
All questions in this paper carry equal marks.

MML 3242 4/02 S40214/3

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1 *Your school is planning to set up an internet web site with details of activities in which students are involved. You have been asked to contribute an article about your Group Development Project.*

Write a brief report suitable for publication on the web site explaining:

(a) why all Development Studies students have to take part in a Group Development Project and how your group decided on the one in which you were involved, [10]

(b) what your project has done to help yourself, the school and the local community. [10]

2 *The government of a country plays an important role in providing conditions for promoting development. There are different systems of government, each system having its own approach to state power.*

(a) Describe the main features of capitalist, socialist and mixed economies. [10]

(b) Using examples which you have studied describe how the system of government operates in a democracy and in a dictatorship. [10]

3 *Many cities in developing countries are growing rapidly. Fig. 1 shows the fastest growing cities in the world.*

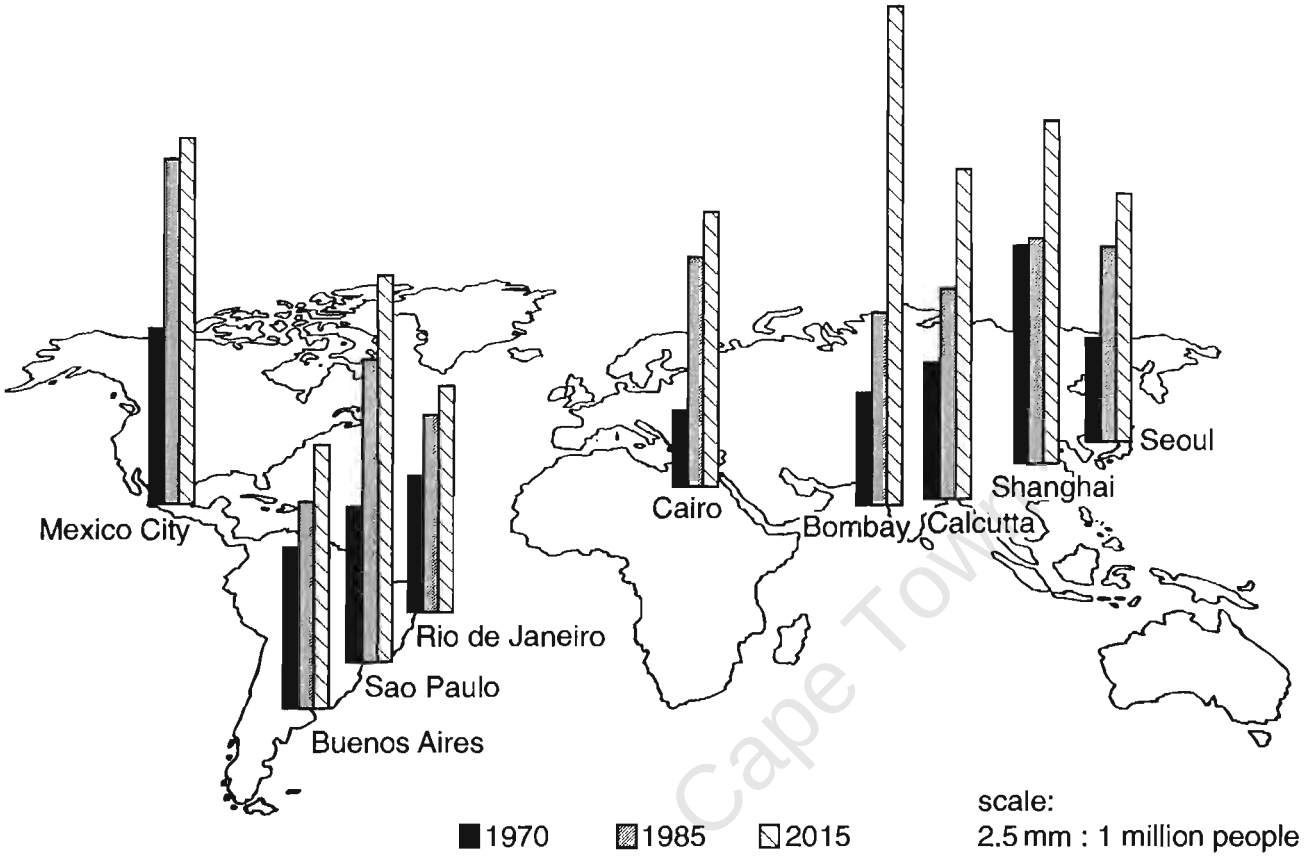


Fig. 1

(a) **(i)** Describe the distribution of the world's fastest growing cities.

(ii) Explain why cities in developing countries are still growing rapidly. [10]

(b) What are the main problems, resulting from rapid urban growth, which these cities face? [10]

4 *Women make many contributions to society but they have an unequal share of the world's wealth and opportunities.*

(a) Describe the role of women in a traditional society and explain how this results in inequality of opportunity. [10]

(b) What can be done to change the role of women in your country? Why are such changes difficult to achieve? [10]

5 *The population structure of a country can be shown on a population pyramid. Fig. 2 shows the population pyramids of two countries at different stages of development. The structure of a country's population can be affected by a major disaster. Fig. 3 shows how AIDS is likely to affect the population structure of Botswana by 2025.*

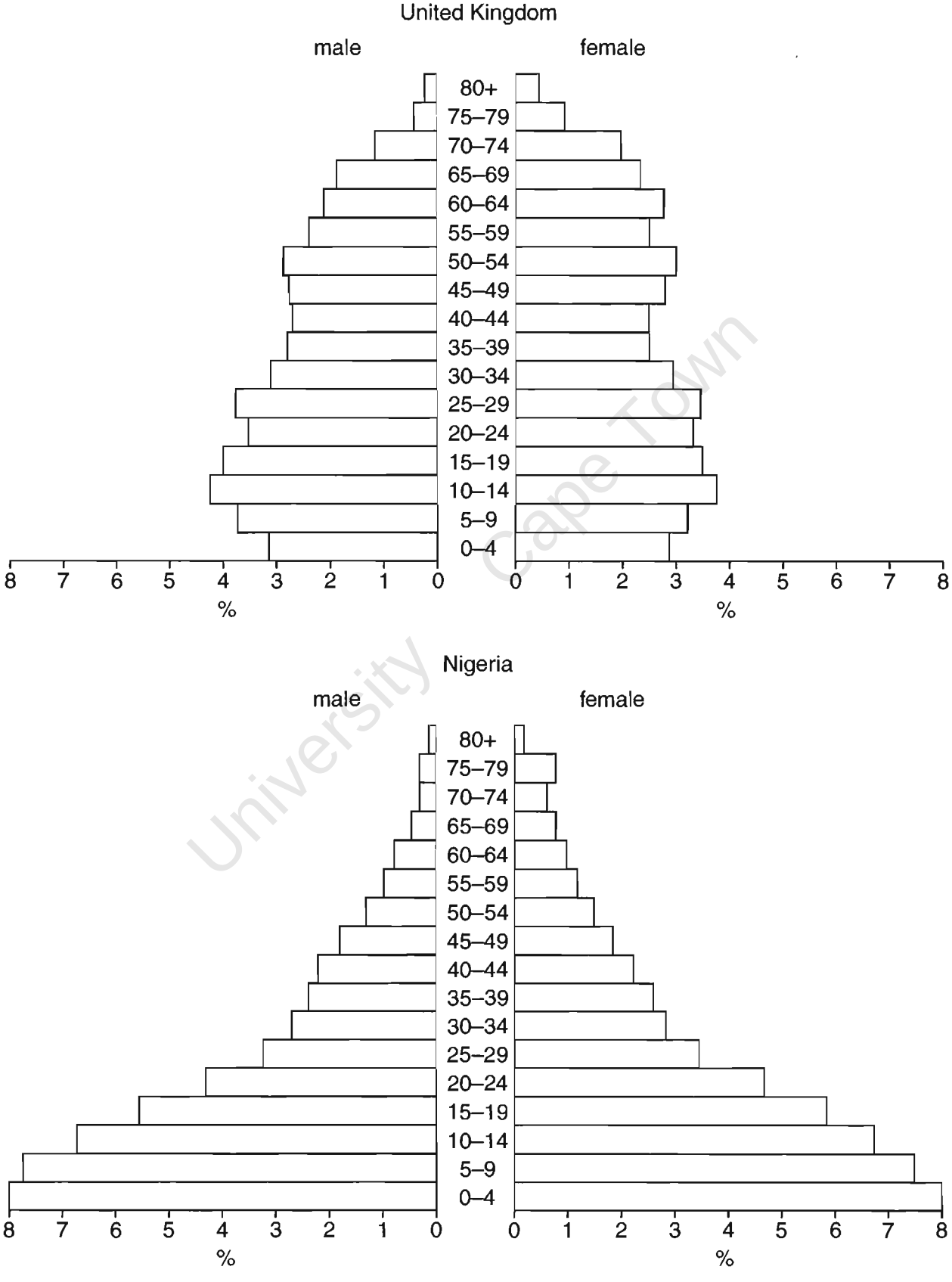
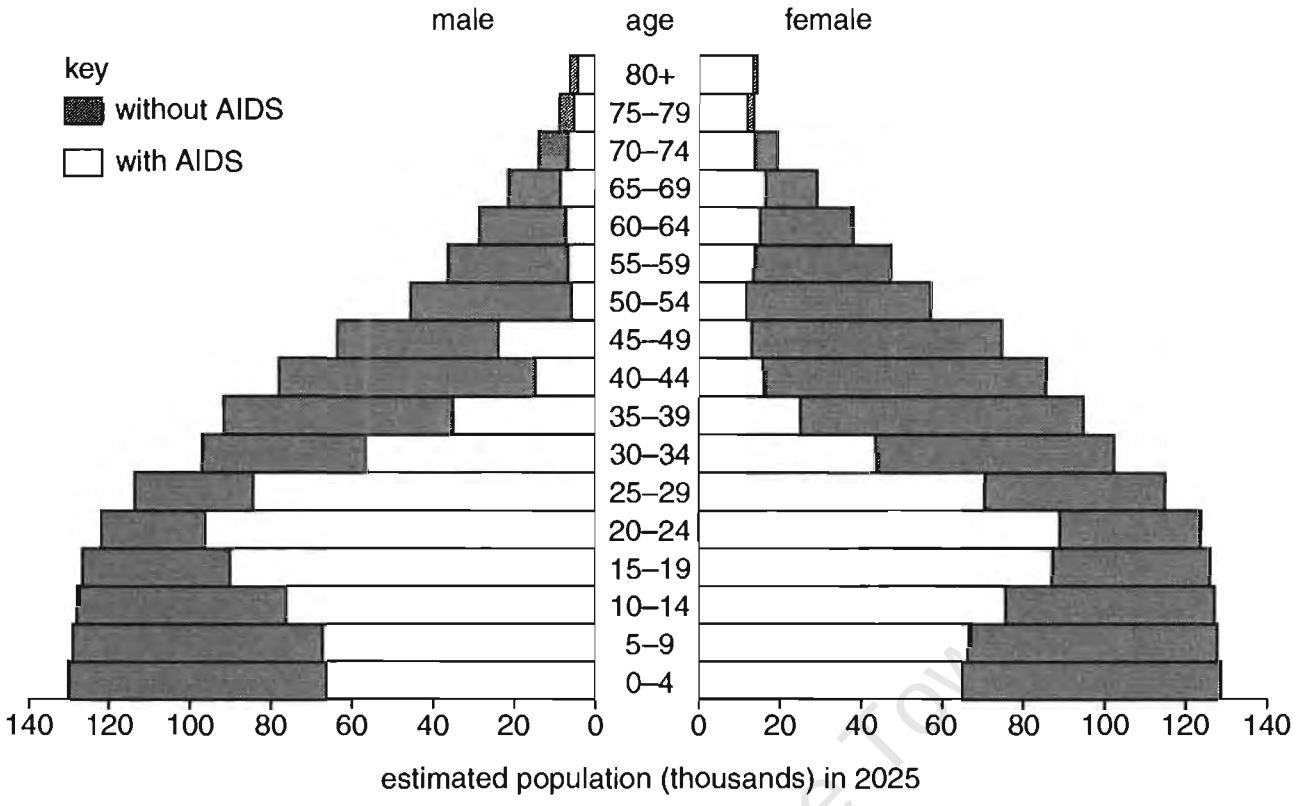


Fig. 2



Source: US Census Bureau, World Population Profile, 2000

Fig. 3

(a) Describe and explain the differences between the population structures of Nigeria and the UK. [10]

(b) **(i)** Using the information in Fig. 3 describe how AIDS is likely to affect the population of Botswana by 2025.

(ii) What strategies are being used in developing countries to try to reduce the impact of AIDS?

[10]

6 *Development can be affected by global ecological problems. Fig. 4 shows some of these problems which many countries face. Some people argue that sustainable development is required to reduce the impact of these problems.*

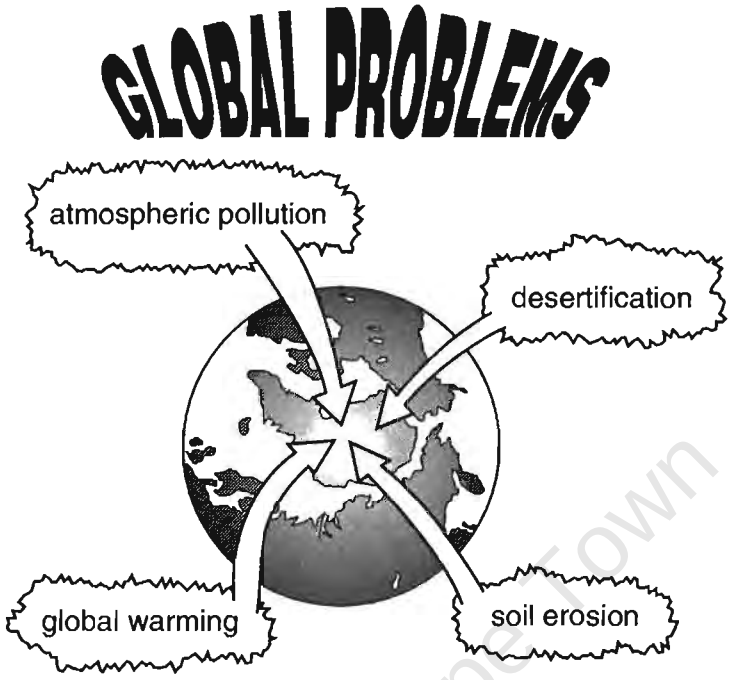


Fig. 4

(a) Choose **one** of the global problems shown on Fig. 4.

(i) Explain the causes of the problem.

(ii) Describe its global impact and its effects on the development of countries in Africa. [10]

(b) What is sustainable development? Explain, by using examples, how tourism has been developed in a sustainable way in southern Africa. [10]

7 *The use of technology is important in the production process. Higher output can sometimes be achieved by the use of appropriate levels of technology and economies of scale can be achieved by large scale production.*

(a) What is meant by simple, intermediate and complex technology? Describe the advantages of each type of technology by using examples. [10]

(b) Explain what is meant by 'economies of scale'. Use an example to explain how economies of scale can be achieved in industrial production. [10]

8 *The current political and economic situation in southern Africa has evolved over a long period of time. Whilst the countries of southern Africa are interdependent they have also been shaped by interaction between themselves and industrialized nations.*

(a) Describe the impact on any one country in southern Africa of any **two** of the following:

The apartheid system Migrant labour Colonialism [10]

(b) Describe any one example of regional cooperation which has been used by the countries of southern Africa. To what extent has it been successful? [10]

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Appendix 28: Research Format for development studies at COSC

1. **Title**

2. **Acknowledgements**

3. **Content page** [table of contents]

4. **Chapter 1 - Introduction**

   Background

   Statement of the problem

   Aims and objectives

5. **Chapter 2 - Methodology**

   Description of methods used and their justification

   Description of the study area

   Population

   Sample

6. **Chapter 3 – Data presentation, interpretation and analysis**

7. **Chapter 4**

   Evaluation [planning, methods, problems encountered and solutions]

   Conclusions and Recommendations

8. **References**

   Interview Questions

   Questionnaires

   Maps etc.

Appendix 29

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOGRAPHY **2223/01–2230/01**

Paper 1 Multiple Choice

October/November 2003

1 hour 15 minutes

1:50 000 Survey Map is enclosed with this Question Paper.
Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, highlighters, glue or correction fluid.
Write your name, Centre number and candidate number on the answer sheet in the spaces provided unless this has already been done for you.

There are **forty** questions in this paper. Answer **all** questions. For each question there are four possible answers, **A**, **B**, **C** and **D**.
Choose the **one** you consider to be correct and record your choice in **soft pencil** on the separate answer sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.

SP (SM/SLC) S44005/1

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Mapwork

1 What is the grid reference of the junction of tarred roads near the centre of the map?

A 743115

B 745113

C 113745

D 115743

2 What is the distance from this road junction along the narrow tarred road to the junction near the Hospital at Mvurwi?

A 4.5 kilometres

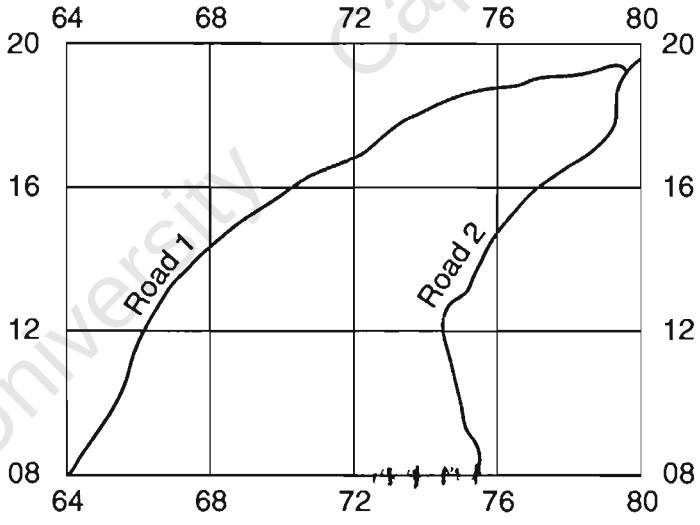
B 5.0 kilometres

C 5.5 kilometres

D 6.0 kilometres

2 cm : 1 km
12 cm : x
12/1 = 6

3 The diagram shows two roads on the map.



In which way is Road 2 different from Road 1?

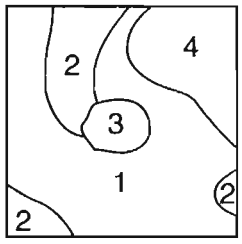
A It avoids most settlement.

B It follows higher ground.

C It is tarred.

D It passes through more cultivated areas.

4 The diagram shows land use in grid square 6403.



Which is the correct key for these land-use zones?

	1	2	3	4
A	bush	cultivation	orchard	smooth rock
B	cultivation	orchard	smooth rock	bush
C	orchard	smooth rock	bush	cultivation
D	smooth rock	bush	cultivation	orchard

5 Two friends climb to the summit of the hill Chironzi (grid square 7410). They observe another hill, Pembi.

What is the grid bearing of Pembi from Chironzi?

A 88°

B 92°

C 182°

D 272°

6 Which economic activity has occurred in the Umvukwe Range in the northwestern part of the map?

A drilling for oil

B forestry

C opencast mining

D terraced farming

7 What is the approximate height of the highest peaks in the Umvukwe Range in grid square 6117?

A 1640 metres

B 1660 metres

C 1680 metres

D 1700 metres

8 Dams have been built across the River Pembi to create two large reservoirs, Pembi Dam and Hyde Dam.

In which general direction is the River Pembi flowing?

A north east to south west

B north west to south east

C south east to north west

D south west to north east

9 In which grid square is there the **lowest** stream density?

A 7009

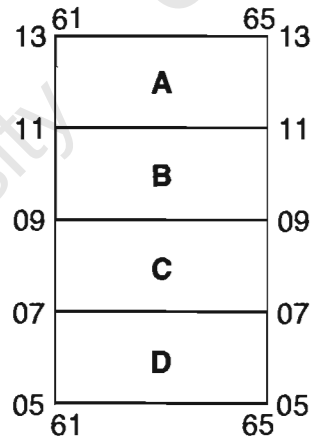
B 7010

C 7011

D 7012

10 Four areas of the map are shown in the diagram.

Which area has the greatest density of rural settlement (buildings and huts)?



11 What was the main reason for the location of the town of Mvurwi?

A defence

B focus of routes

C mining centre

D timber processing

12 From map evidence, which service is **not** provided by the settlement at Mvurwi?

A health

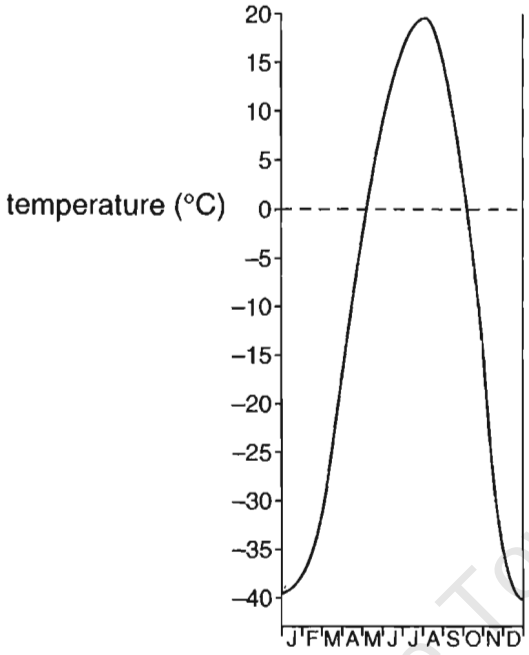
B postal

C railway

D water supply

Basic Techniques

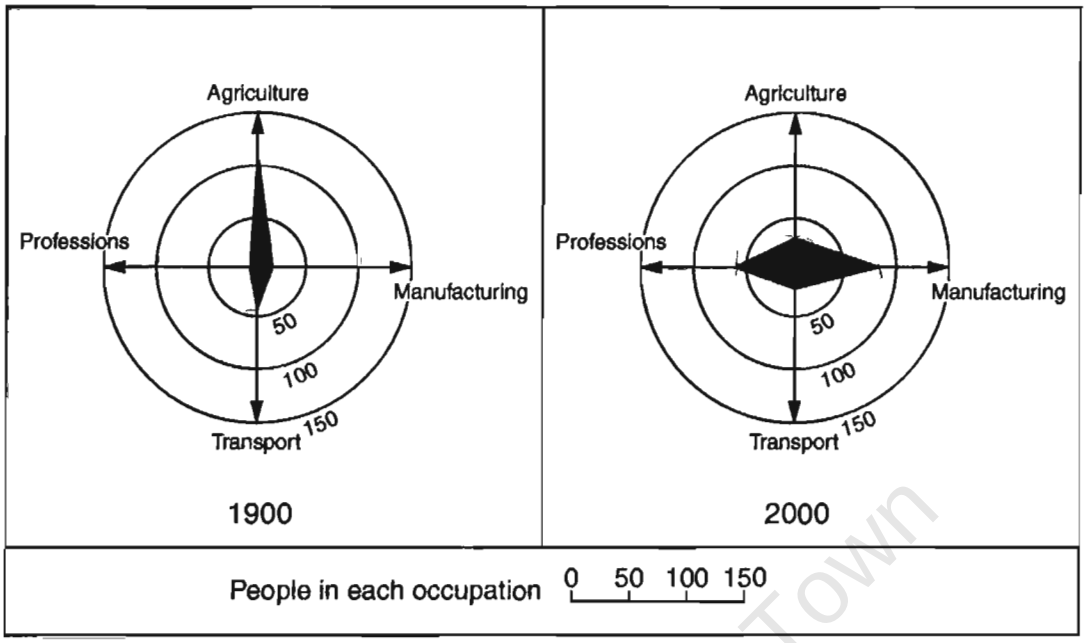
13 The graph shows mean monthly temperatures for a place.



What is the annual range of temperature at this place?

A 0 °C **B** 19 °C **C** 39 °C **D** 59 °C

14 The diagrams show changes in the relative importance of four occupations of people in a settlement over a period of a hundred years.



What was the greatest change in these occupations?

A a decrease in agriculture

B a decrease in transport

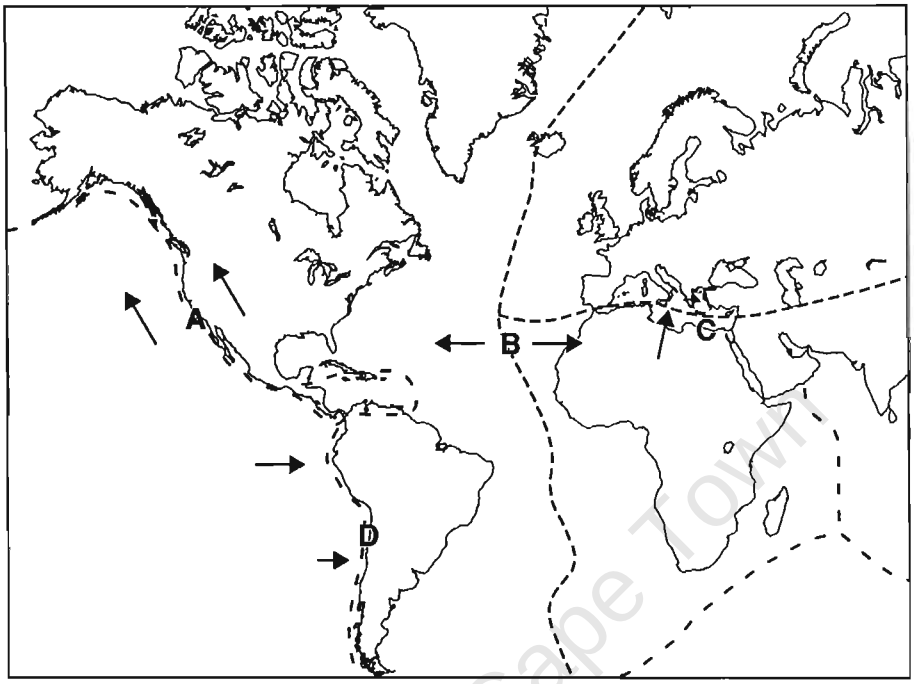
C an increase in manufacturing

D an increase in professions

Physical Geography

15 The map shows some tectonic plate boundaries.

Which is a constructive plate boundary?



16 What is the correct sequence of events causing a volcanic eruption at a destructive plate margin?

A	oceanic plate subducts	plates collide	plate partially melts
B	oceanic plate subducts	plate partially melts	plates collide
C	plate partially melts	oceanic plate subducts	plates collide
D	plates collide	oceanic plate subducts	plate partially melts

17 The table shows weathering processes.

Which processes involve expansion?

A	development of salt crystals	freeze thaw	hydration
B	freeze thaw	development of salt crystals	hydrolysis
C	hydration	hydrolysis	development of salt crystals
D	hydrolysis	hydration	freeze thaw

18 The table shows climate statistics for four places.

Which place is likely to be most affected by chemical weathering?

	average summer temperature °C	average winter temperature °C	annual rainfall mm	distribution of rainfall
A	12	–20	400	summer only
B	16	4	800	all year round
C	28	12	2000	all year round
D	34	18	200	unreliable

19 The statements describe two processes operating in rivers.

1 fast flowing water breaks away weak rocks

2 rocks carried by the river erode its beds and banks

Which two processes are described?

	1	2
A	corrasion (abrasion)	corrasion
B	corrasion (abrasion)	hydraulic action
C	hydraulic action	corrasion (abrasion)
D	hydraulic action	corrosion

20 What is required for the formation of coastal dunes?

A a large tidal range

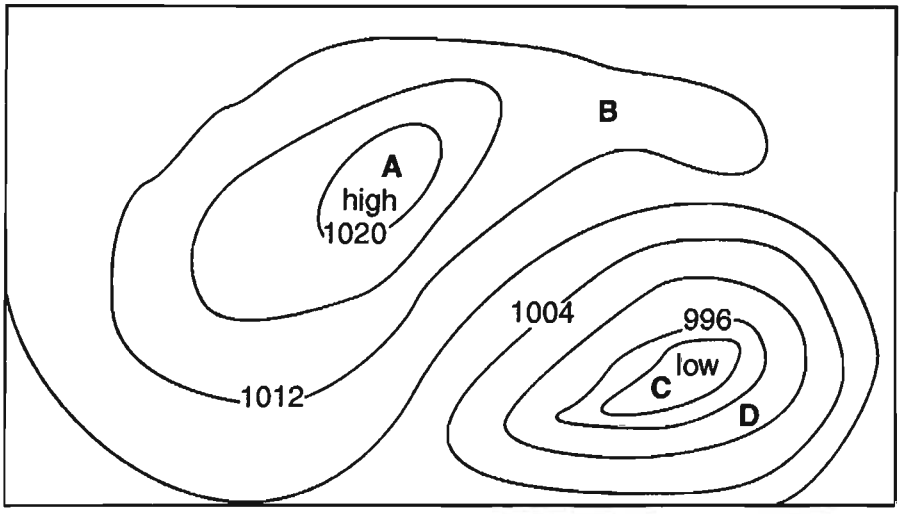
B a long fetch

C a wide sandy beach

D frequent offshore winds

21 The map shows the distribution of atmospheric pressure over an area.

At which location is wind speed greatest?



22 The temperature shown by an ordinary thermometer in a Stevenson Screen on a day with low relative humidity was 24 °C. The wet and dry bulb thermometer were read at the same time.

Which readings were shown on the wet and dry bulb thermometers?

	wet bulb thermometer	dry bulb thermometer
A	16 °C	24 °C
B	22 °C	24 °C
C	24 °C	16 °C
D	24 °C	24 °C

23 What describes an equatorial climate throughout the year?

	temperature	rainfall	humidity
A	high	high	high
B	high	high	low
C	low	low	low
D	low	high	high

24 The table shows variations in sunlight received at the tops of three vegetation layers in a tropical rainforest.

location	percentage
X	75
Y	20
Z	100

At the tops of which layers were these measurements taken?

	X	Y	Z
A	canopy layer	ground layer	emergent layer
B	emergent layer	canopy layer	ground layer
C	emergent layer	ground layer	canopy layer
D	ground layer	emergent layer	canopy layer

Settlement Studies

25 Which could be included in a description of the **site** of a rural settlement?

A distance from the next settlement

B height above sea level

C number of services provided

D population total

26 The government of a tropical country is considering resettling a tribe of nomadic herders in a permanent village. The tribe will practise cropping and livestock herding there.

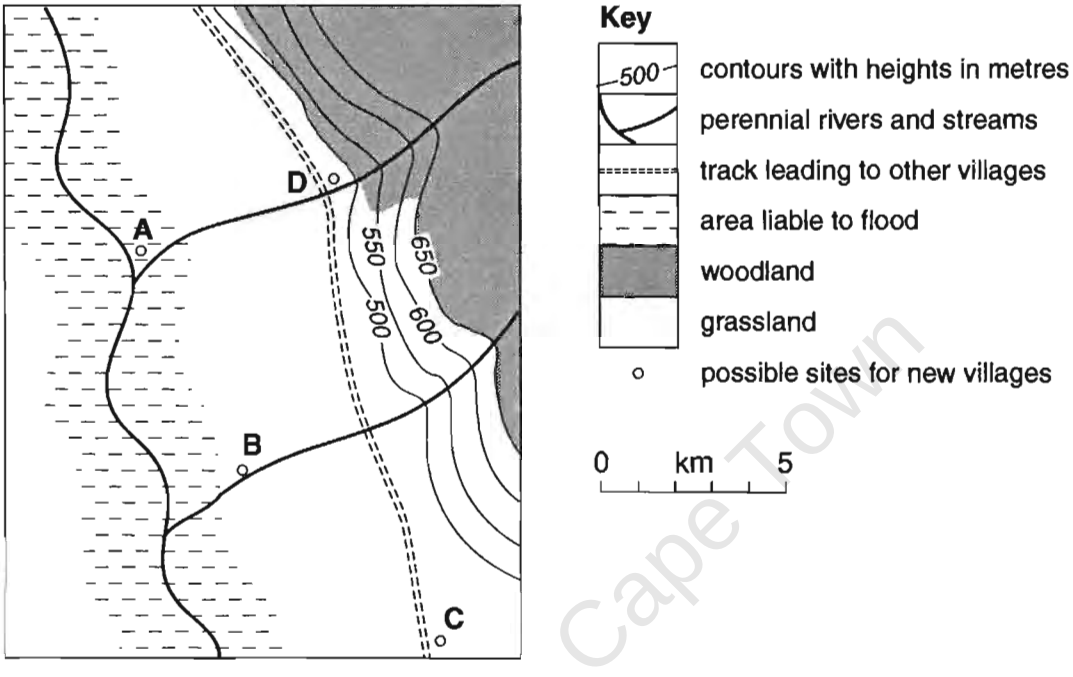
Which would be the most suitable area for the new settlement?

area	height of land (metres)	type of land	annual rainfall (mm)
A	0	flat	500
B	500	steep	500
C	1000	steep	600
D	1500	flat	1000

27 A government feels that certain factors are of equal importance for the selection of a site for a new village:

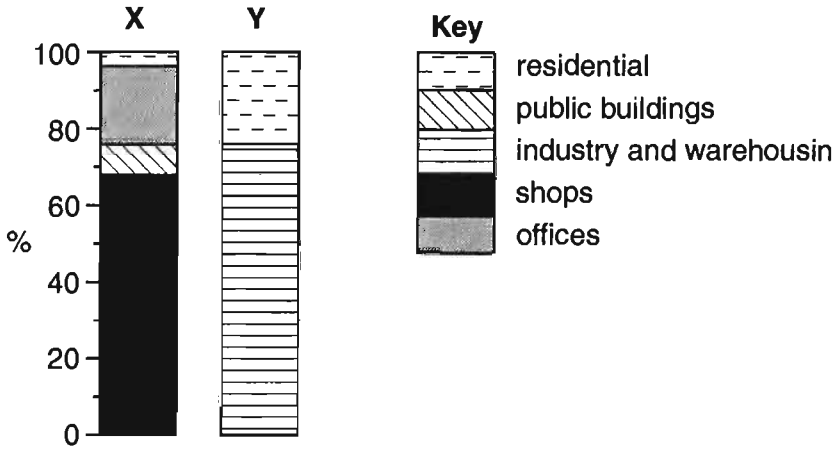
'a dry site, a supply of fresh water, a supply of fuel and building material, an existing communication link.'

Which site on the map should be chosen?

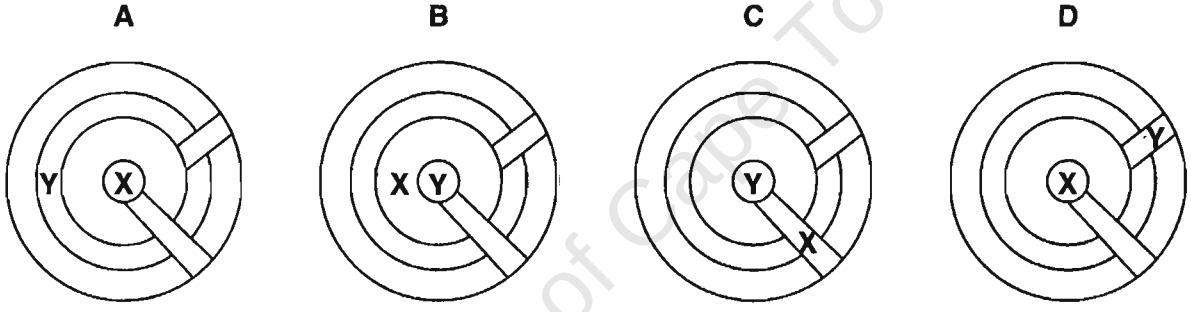


[Turn over

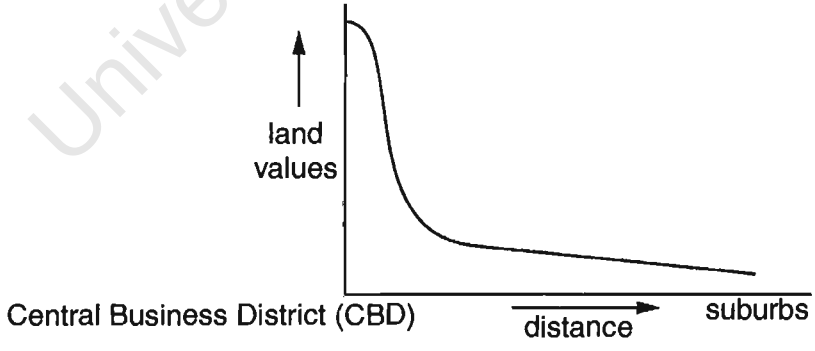
28 The bar graphs show the land use of two zones in a city in a developing country. The models show the structure of this city.



Which model shows the zones where the land uses shown in bars **X** and **Y** will be found?



29 The graph shows how land values vary with distance from the centre of the city.



What is the main reason for this variation in land values?

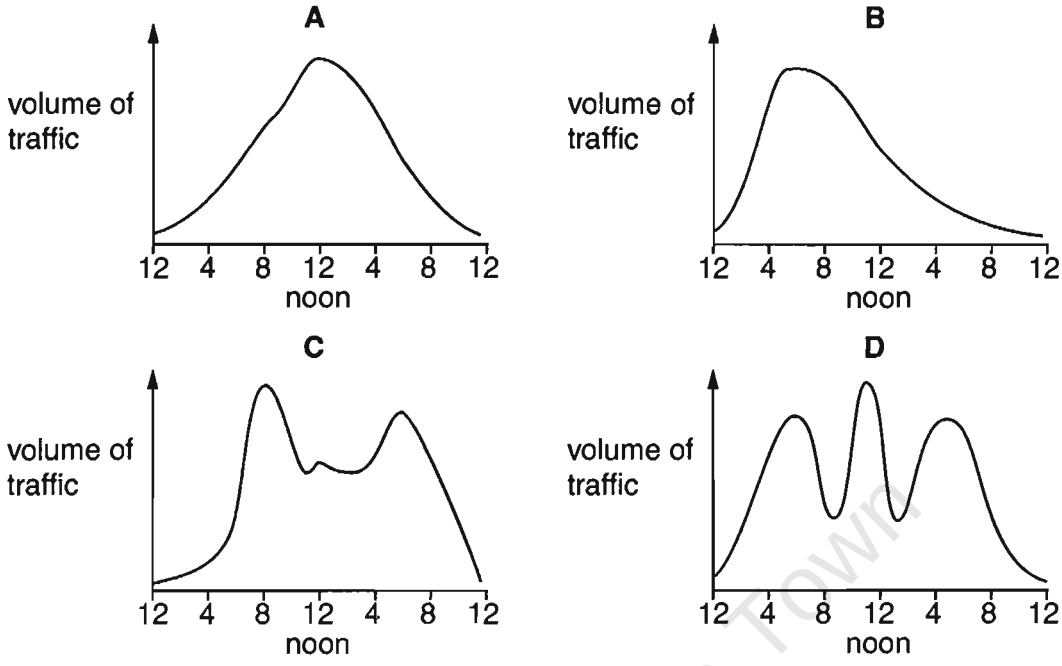
A More people live in the CBD than in the suburbs.

B The CBD is less accessible than the suburbs.

C There is a bigger demand for land in the CBD than in the suburbs.

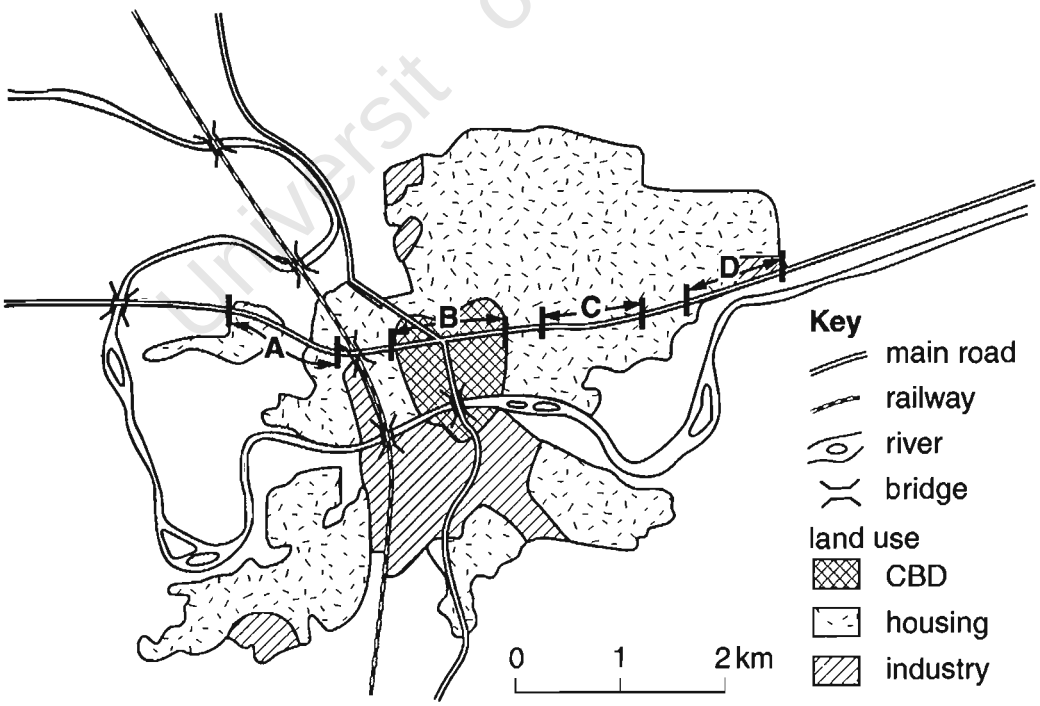
D The suburbs have more offices and shops than the CBD.

30 Which graph represents the volume of traffic movement found in many cities on a normal working day?

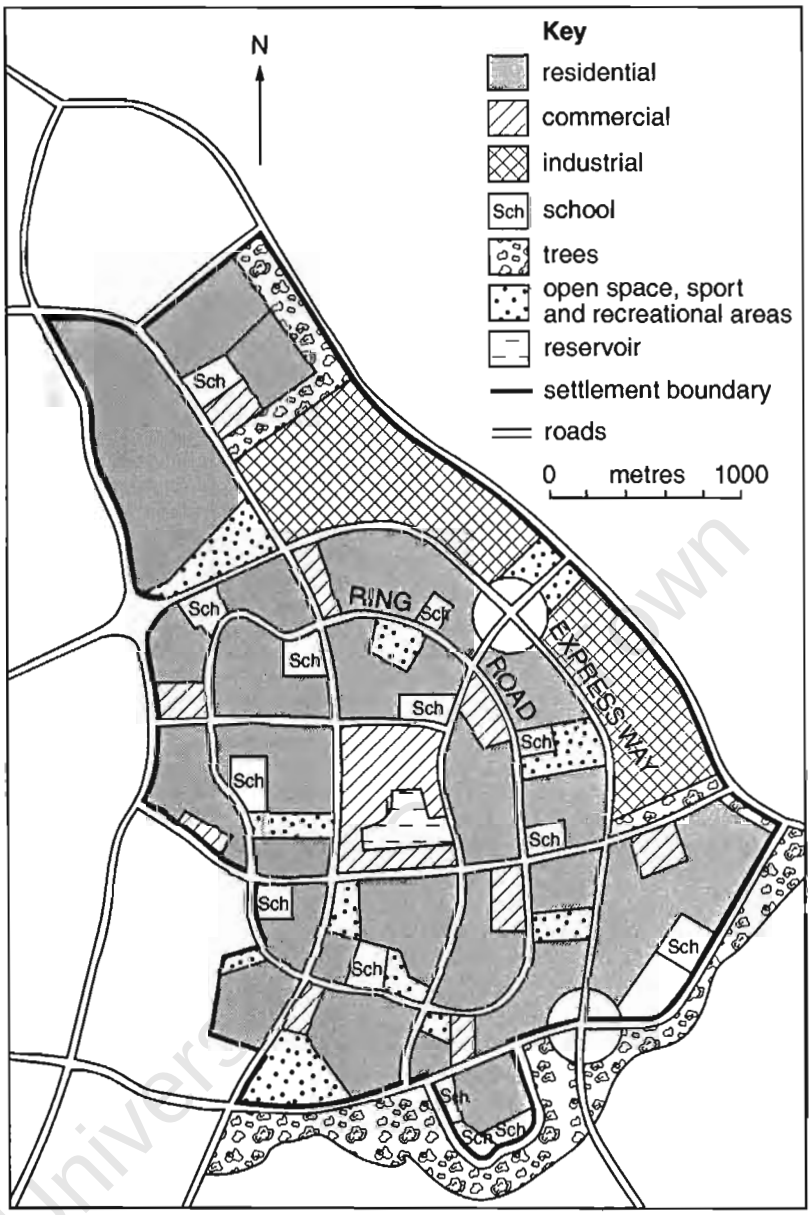


31 The map shows a town.

Along which stretch of road will traffic congestion be greatest?



32 The map shows a settlement in a developing country.



Which type of settlement is shown?

A capital city

B market town

C mining town

D planned new town

Population Studies

33 At what stage is infant mortality rate measured?

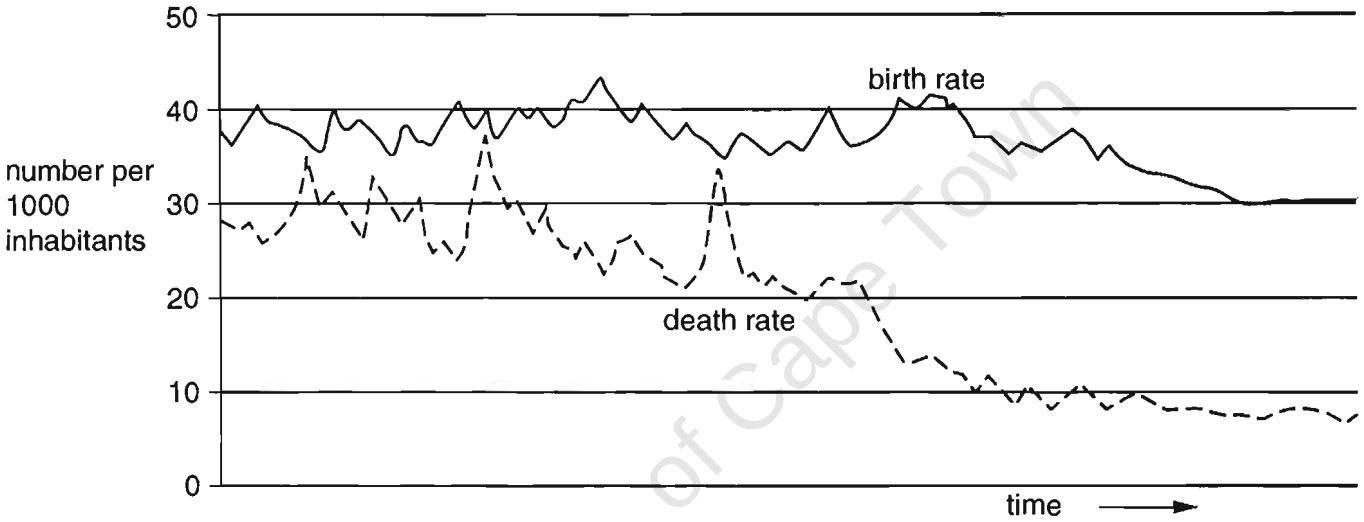
A at birth

B under one year

C under three years

D under five years

34 The diagram shows the changes in birth rate and death rate for a country during the twentieth century.



What does the diagram show for this period?

A The birth rate has fallen more slowly than the death rate.

B The birth rate has fluctuated more widely than the death rate.

C The death rate has fallen constantly.

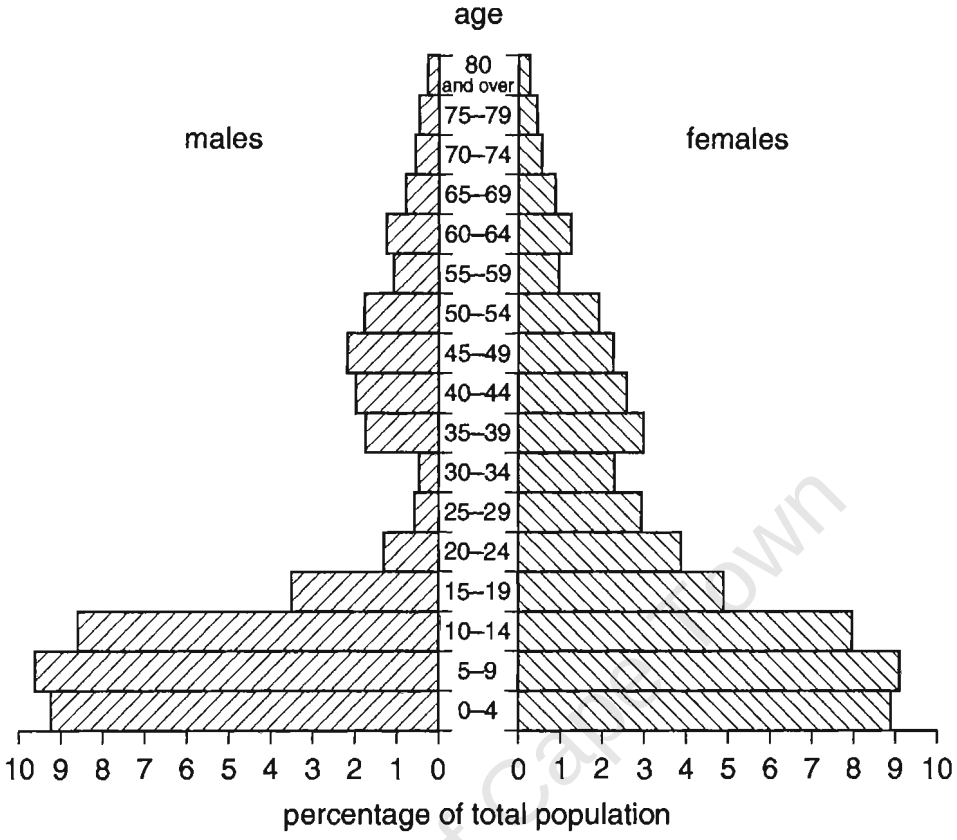
D The total population resulting from natural increase is falling.

35 The table shows the populations and areas of four countries.

Which country is the **least** densely populated?

country	population (millions)	area (thousand km^2)
A	10	185
B	16	7687
C	50	514
D	1060	9597

36 The population pyramid shows the age structure of one population group of a country in which there has been movement of people seeking work.



Which population group does the pyramid represent?

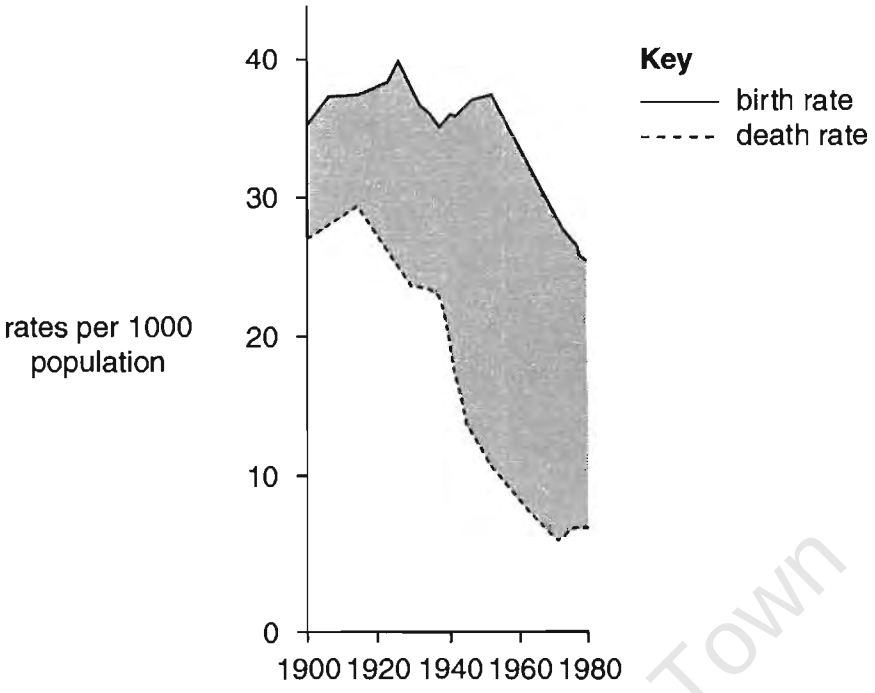
A the immigrant population

B the residents of rural areas

C the residents of urban areas

D the workforce of plantations (estates)

37 The diagram shows the birth and death rates for a country over a period of time.



Assuming there was no migration, what does this diagram show about the change in the size of the total population between 1900 and 1980?

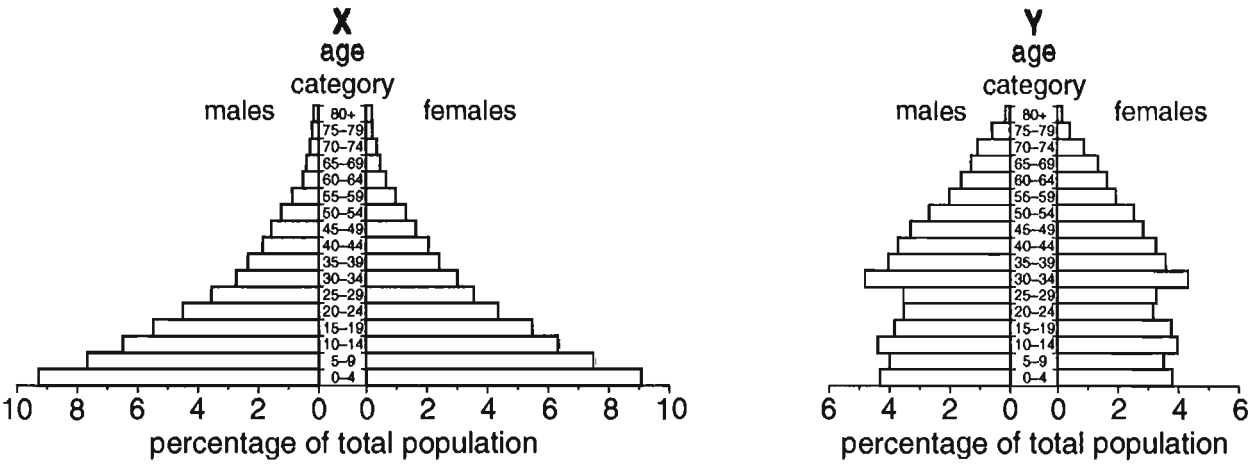
A It decreased and then increased.

B It decreased throughout.

C It increased throughout.

D It remained at the same level.

38 The pyramids represent the population structures of two countries, **X** and **Y**.



Which statement is true?

A Country **X** is at a later stage in the demographic transition model than country **Y**.

B Life expectancy is higher in country **X** than in country **Y**.

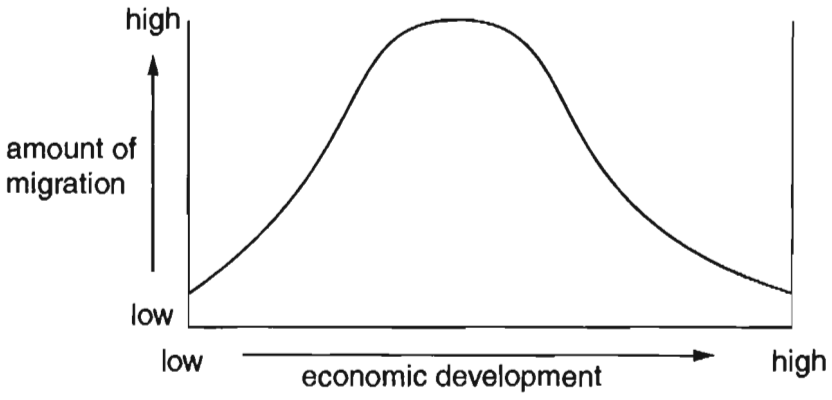
C The birth rate and death rate in country **X** are lower than in country **Y**.

D The proportion of dependent population in country **X** is greater than in country **Y**.

39 The graph shows annual income per head of population and birth rates for four countries.

Which country is likely to suffer most from problems of over-population if death rates are the same for each country?

40 The graph shows changes in the amount of a type of migration as a country develops its economy.



Which type of migration does the graph show?

A rural to rural

B rural to urban

C urban to rural

D urban to urban

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Appendix 30: 2003 geography examiner's report

The general performance in geography has been adversely affected by poor performance in paper 1. This can be accounted by the candidates' failure to appreciate the relationship between the natural-physical processes that shape 'our world' and the human activities. They appear to lack exposure to geography and were unable to apply the knowledge of climatology, geomorphology, settlements and economic geography to interpret the maps.

There is a perception that physical geography, map reading, and photography interpretation are 'difficult', and the tendency is, therefore, to do them in isolation. Inability to appreciate the physical processes and the impact of man's activities on the earth results in 'our' failure to care for the environment. 73% of candidates have obtained a grade E and above.

Centre Number	Index Number	Name

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOGRAPHY **2223/02**

Paper 2
(FOR CENTRES IN SOUTHERN AFRICA)

October/November 2003

2 hours 15 minutes

INSERT 1

READ THESE INSTRUCTIONS FIRST

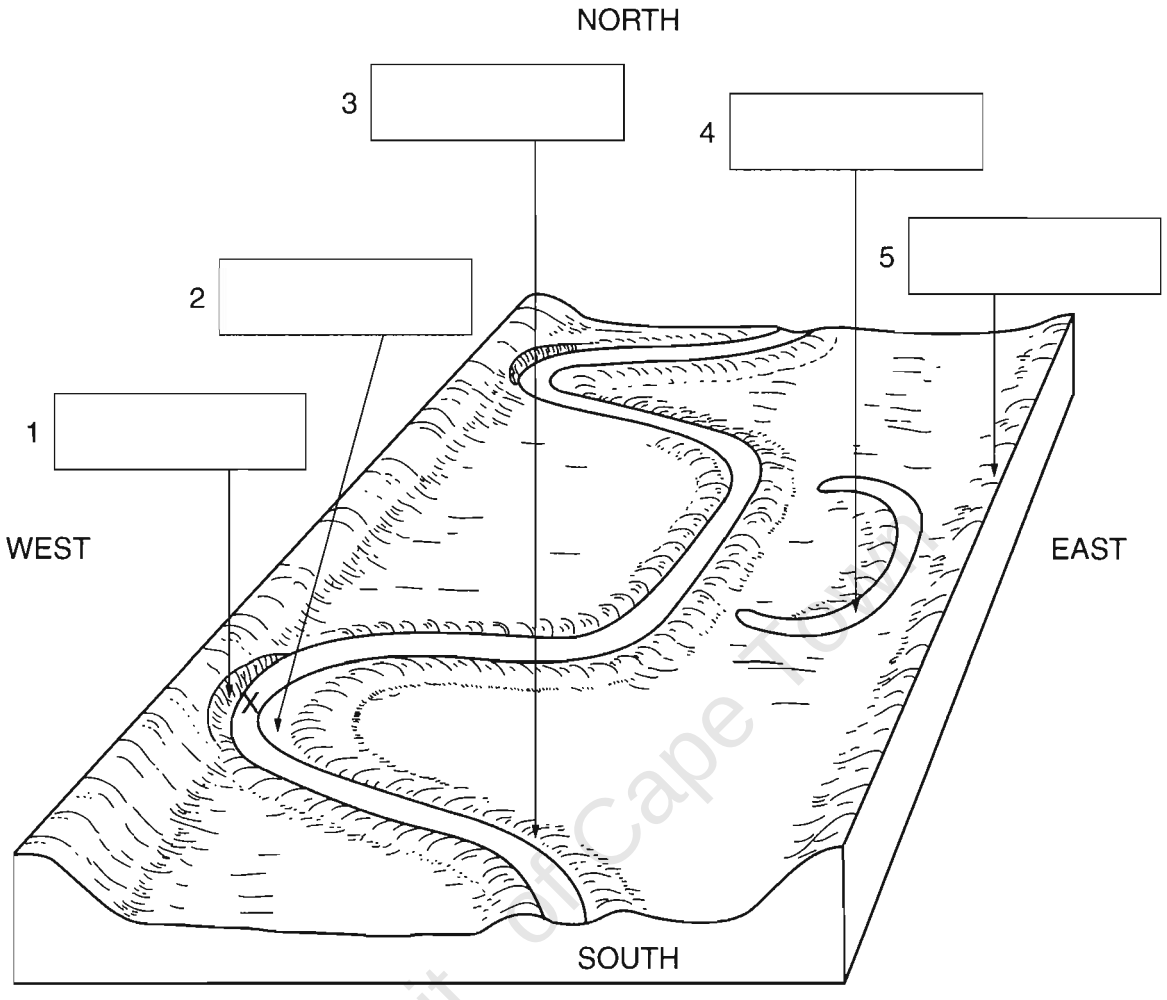
This insert contains Fig. 2 for Question 1.

If you have answered Question 1, write your name, centre number and candidate number in the spaces at the top of this page and attach the insert to your answer paper/answer booklet.

This document consists of **2** printed pages.

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

Fig. 2 for Question 1(b)



Appendix 31

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

GEOGRAPHY **2223/02**
(FOR CENTRES IN SOUTHERN AFRICA)

Paper 2

October/November 2003

2 hours 15 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer any **four** questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.
Insert 1 contains Fig. 2 for Question 1.
Insert 2 contains Photograph A for Question 2 and Photograph B for Question 4.

SP (AT/KN) S36864/3

University of Cambridge
Local Examinations Syndicate

1 **(a)** Fig. 1 shows how the size of particles moved by a river varies with the speed of the river flow.

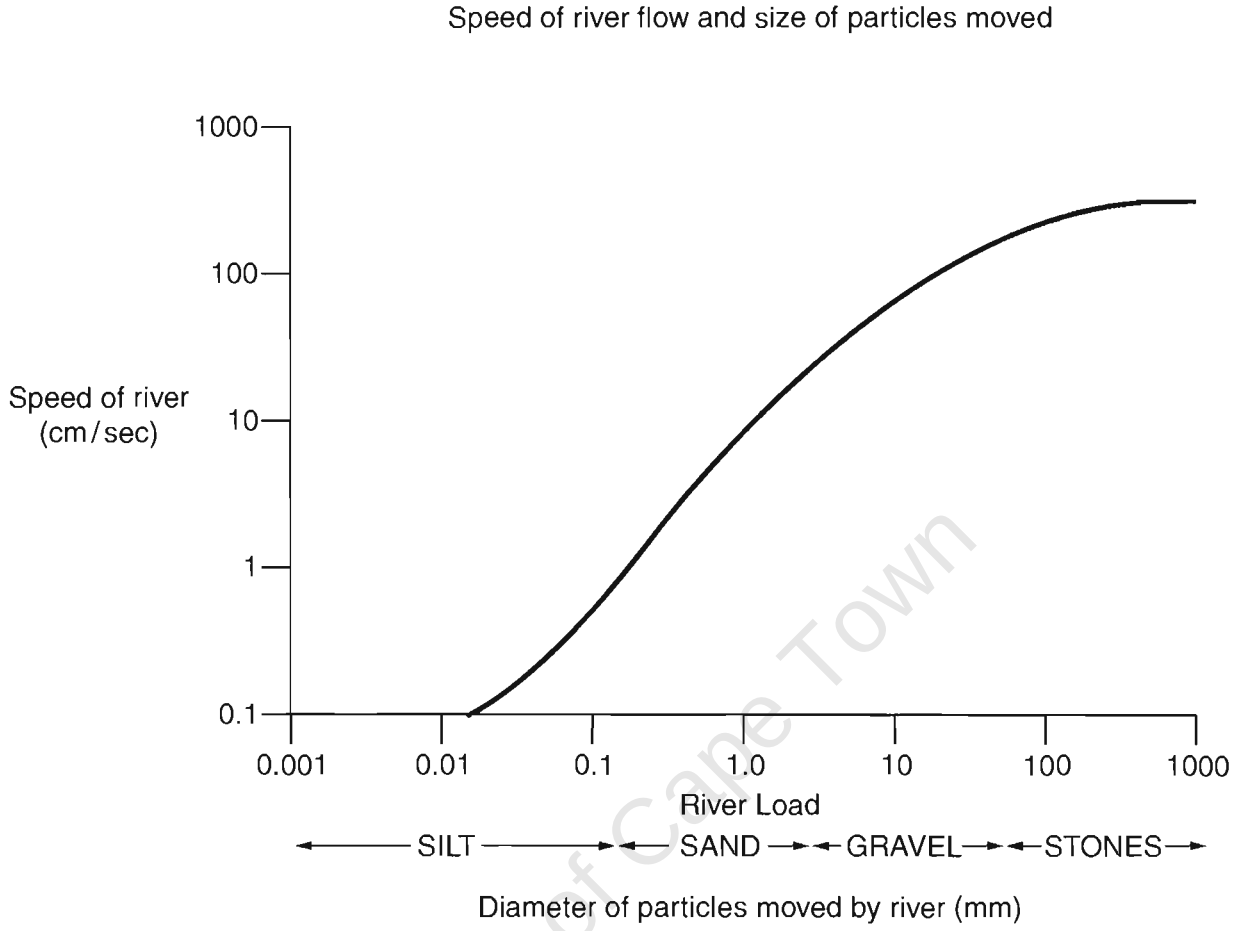


Fig. 1

(i) What general relationship is shown by the graph? [1]

(ii) State **three** ways in which a river might transport these particles. [3]

(iii) When and where does a river deposit its load? [5]

(b) Study Fig. 2 (Insert 1) which shows part of the lower course of a river valley.

(i) Complete Fig. 2 by adding labels in the boxes numbered **1** to **5** to identify the river and valley features. [5]

(ii) *On your answer paper*, draw a labelled cross section, from west to east, to show the shape of the meander at **X**. [2]

(iii) Explain how a river may form the feature labelled **3** on Fig. 2. Illustrate your answer with a labelled diagram. [6]

(c) Draw diagrams *only* to show each of the following drainage patterns:

radial, trellised, dendritic.

Name each of the diagrams you have drawn. [3]

2 **(a)** Study Photograph **A** (Insert 2) which shows deposits of pebbles taken at three different locations between the low water (low tide) mark and the top of the beach.

(i) Which set of pebbles, **I**, **II** or **III**, would be found nearest to low water (low tide) mark? [1]

(ii) Describe the changes in the sizes of beach material between mean low tide mark and the top of the beach. [4]

(iii) Explain why the size of the deposits at location **I** is different from that at location **III**. [1]

(b) **(i)** Explain the difference between swash and backwash in the action of longshore drift. [4]

(ii) Draw a simple diagram to show the movement of a pebble along a beach when longshore drift is taking place. [1]

(iii) Name a feature constructed by people to prevent longshore drift. [1]

(c) Explain how a spit may be formed. [5]

(d) **(i)** Describe the main features of a fringing coral reef.

(ii) Describe the condition of the water in which coral reefs develop. [8]

3 **(a)** Study the climate graph (Fig. 3) for a place in Africa south of the Sahara.

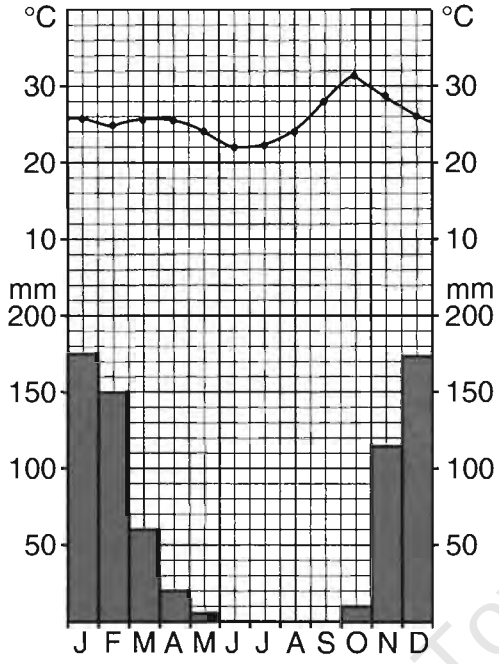


Fig. 3

(i) Name the type of climate shown. [1]

(ii) Describe the seasonal variations in temperature and rainfall shown on the graph. [4]

(iii) Give reasons for the changes shown in the distribution of rainfall throughout the year. [4]

(iv) Describe the main characteristics of the natural vegetation found in areas with this type of climate. [5]

[Question 3 continued on page 5]

(b) Study Fig. 4 which shows the broad distribution of some of the types of natural vegetation found in Africa south of the Sahara.

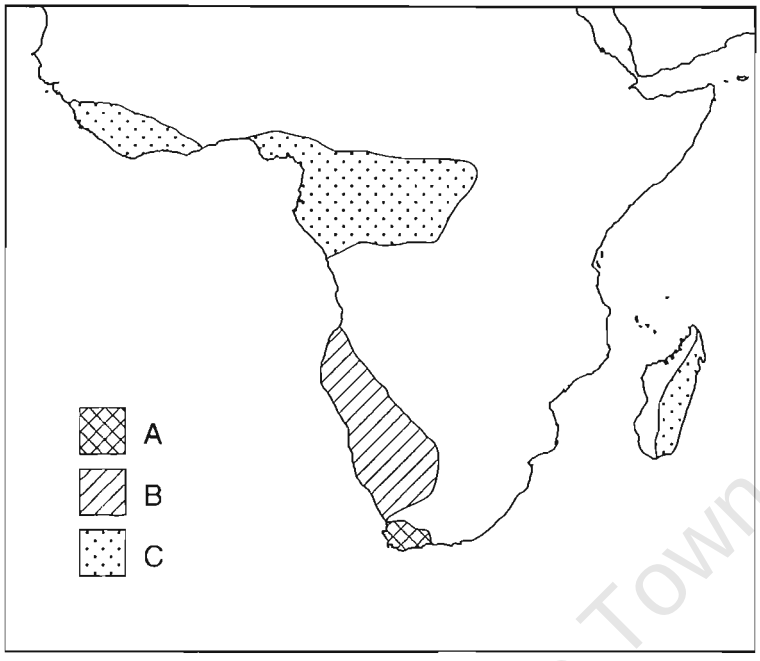


Fig. 4

(i) Write down **A**, **B** and **C** as a list and name each of the types of natural vegetation shown. [3]

(ii) How is the natural vegetation of type **A** adapted to reduce transpiration and to store water for the drought season? [4]

(iii) Why is there continuous growth and great density of vegetation in the area where type **C** is found? [4]

4 **(a)** Study Photograph **B** (Insert 2) which shows an example of a craft industry in Botswana. With the help of Photograph **B** describe the main features of craft industries carried on in the Boleswa countries. [5]

(b) You have been asked to choose a site for a new factory for your company.

(i) State **five** factors you would consider when choosing the new site. [5]

(ii) How would the development of a new factory in one of the Boleswa countries benefit the country and its people? [5]

(iii) Why has the expansion of manufacturing industry been slow in Botswana, Lesotho and Swaziland? [7]

(iv) Suggest how industrial development in the Boleswa countries might change in the future. [3]

5 **(a)** Agriculture takes place on intensive, irrigated farms in the Boleswa countries.

(i) Describe the main characteristics of intensive farming. [5]

(ii) State the human influences which affect the type of crops grown. [5]

(iii) Describe the main types of irrigation used on these farms. [5]

(iv) Describe the benefits which result from the development of irrigation. [5]

(b) Describe some of the methods used to control and prevent soil erosion in the Boleswa countries. [5]

6 **(a)** **(i)** Name an area in Africa south of the Sahara (excluding Botswana, Lesotho and Swaziland) where shifting cultivation is practised. [1]

(ii) Describe the shifting farmer's work, including in your answer details of preparation of the land, implements and methods used. [6]

(iii) Why is shifting cultivation a wasteful system of agriculture? [4]

(iv) What factors may cause a decline in the importance of shifting cultivation? [4]

(b) The diagram below (Fig. 5) shows farming as a system of inputs, processes and outputs.

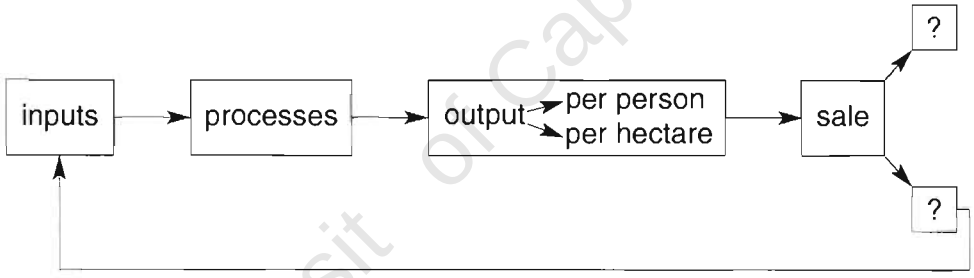


Fig. 5

For a named location, use the information given in the diagram to help you to describe the main features of a large scale system of commercial, arable farming. [10]

7 **(a)** Tourism is developing rapidly in many countries in Africa south of the Sahara.

(i) Why do people travel? [4]

(ii) Give reasons for the growth of tourism in Africa south of the Sahara in recent years. [5]

(iii) Why is it important for countries in Africa south of the Sahara to develop tourism? [5]

(iv) Describe the advantages to both the countries and the tourists if several African countries work together to develop tourism. [3]

(v) A new development in Africa south of the Sahara is 'eco-tourism' (environmentally friendly tourism). Suggest three reasons why eco-tourism should be encouraged. [3]

(b) Fig. **6** shows an advertisement used to attract tourists to Namibia in the south-west of Africa.

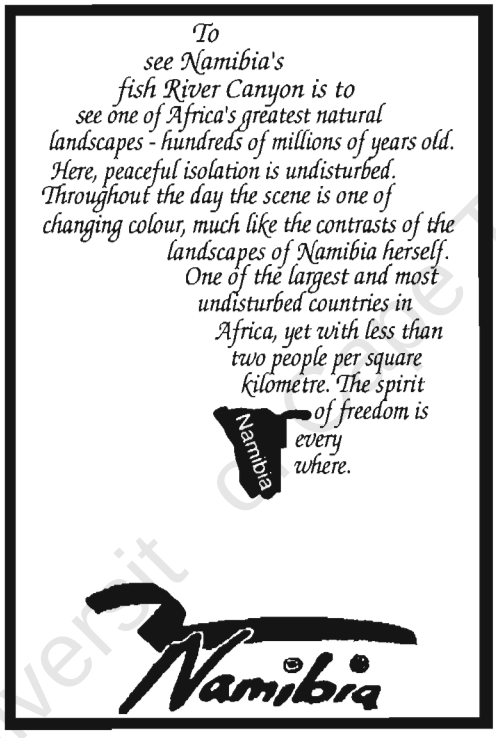


Fig. 6

For **either** Namibia **or** one other country you have studied in Africa south of the Sahara (excluding Botswana, Lesotho and Swaziland) describe the natural attractions of that country. [5]

8 **(a)** For gold mining in Africa south of the Sahara (excluding Botswana, Lesotho and Swaziland) name **one** area where it is important. [1]

(b) For the location you have chosen, describe

(i) the factors which have affected the exploitation of the mineral, [4]

(ii) the methods by which the mineral is mined and extracted from the ore, [4]

(iii) the problems associated with the mining of this mineral, [4]

(iv) the ways in which the appearance of the landscape is changed as a result of mining. [4]

(c) With reference to nuclear power in the Republic of South Africa,

(i) name the fuel used in a nuclear reactor, [1]

(ii) state the factors which should be considered in the siting of a nuclear power station, [4]

(iii) describe the disadvantages of producing nuclear power. [3]

9 **(a)** For **one** industrial complex which you have studied, show how government help has contributed to its development. [5]

(b) Motor vehicle manufacturers, such as General Motors, have set up factories in Africa south of the Sahara.

(i) Why have industrial organisations, such as motor vehicle manufacturers, set up factories in developing countries of Africa south of the Sahara? [5]

(ii) Describe the problems which may arise in African countries when large multinational firms, such as those assembling motor vehicles, establish factories there. [5]

(c) Describe the effects that some large scale industrial developments may have on the environment of a developing country. [5]

(d) Explain why some manufacturing and processing industries in Africa south of the Sahara, such as iron and steel and petroleum refining, are large scale and concentrated in a small number of locations. [5]

10 **(a)** Large towns and cities in Africa south of the Sahara develop both a CBD and squatter settlements.

(i) Explain what is meant by the term CBD. [2]

(ii) Describe the main features of a CBD under the headings of

A population, [3]

B shopping facilities. [3]

(iii) Describe some of the problems found in the CBD of a town or city. [5]

(iv) Describe how the authorities might reduce traffic problems in towns. Do not refer to changes in the road system in your answer. [4]

(b) Describe the problems that are brought to large cities in Africa south of the Sahara by the development of squatter settlements. [8]

11 **(a)** Study Fig. 7 which shows the population structure of a country in Africa south of the Sahara and suggest how this structure is typical of many countries in Africa. [5]

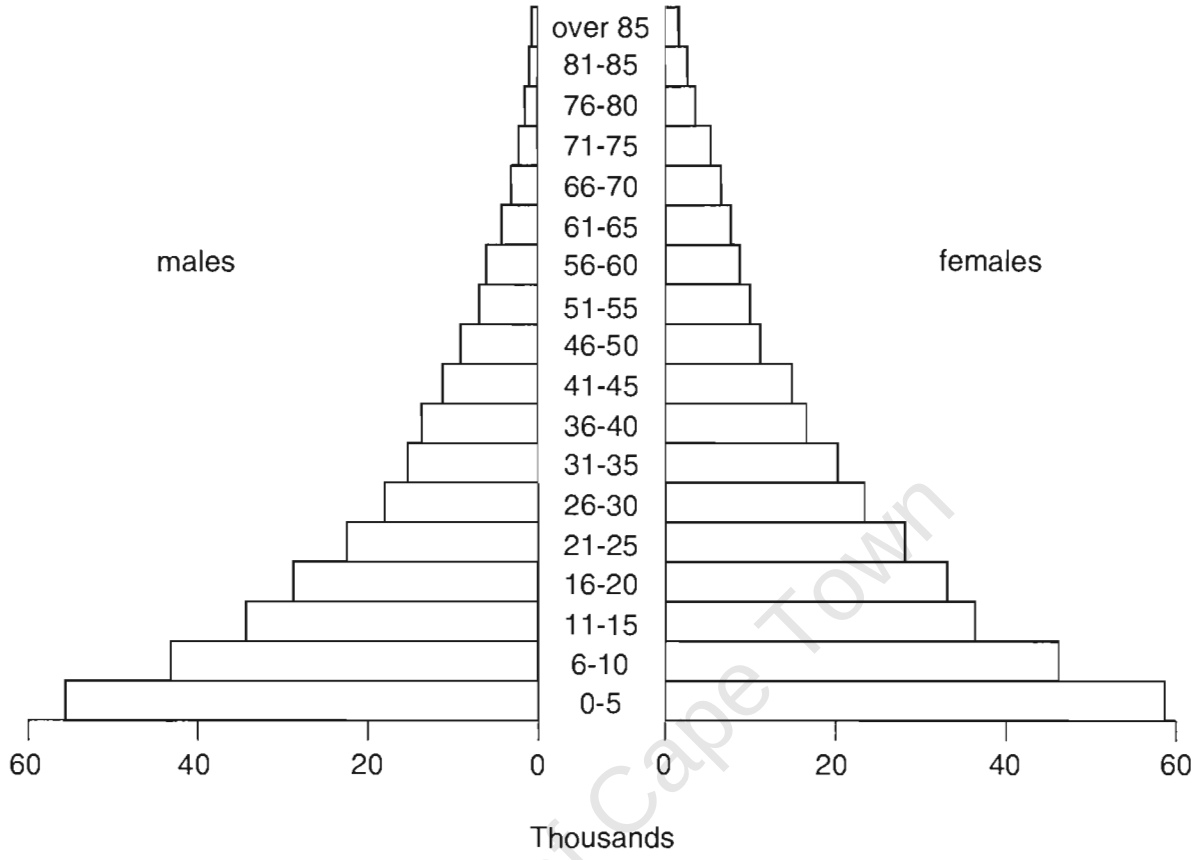


Fig. 7

(b) Fig. 8 shows four stages in population development and four population pyramids **A**, **B**, **C** and **D**.

(i) Write down **A** and **B** as a list and against each letter state in which stage of population development the population pyramid would be found. [2]

(ii) Give reasons for **each** of your answers. [2]

(iii) Which of the population pyramids **A**, **B**, **C**, **D**, is most likely to represent the population structure of the Boleswa countries at the present day? [1]

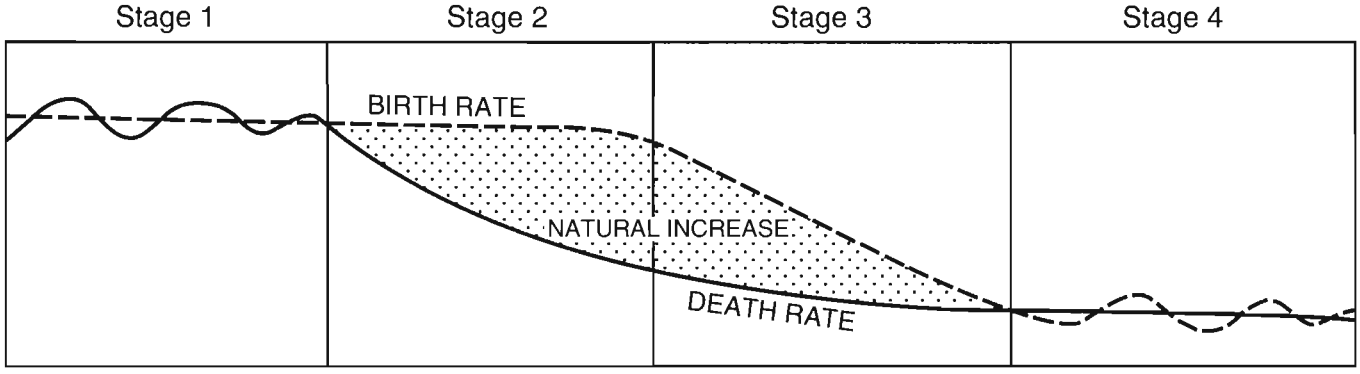
(iv) State in which stage there would be the greatest increase in population and give one reason for your answer. [2]

(v) In which stage is there a period of decline in population? [1]

(c) Suggest why many countries in Africa south of the Sahara have

(i) high birth rates, [6]

(ii) low life expectancies. [6]



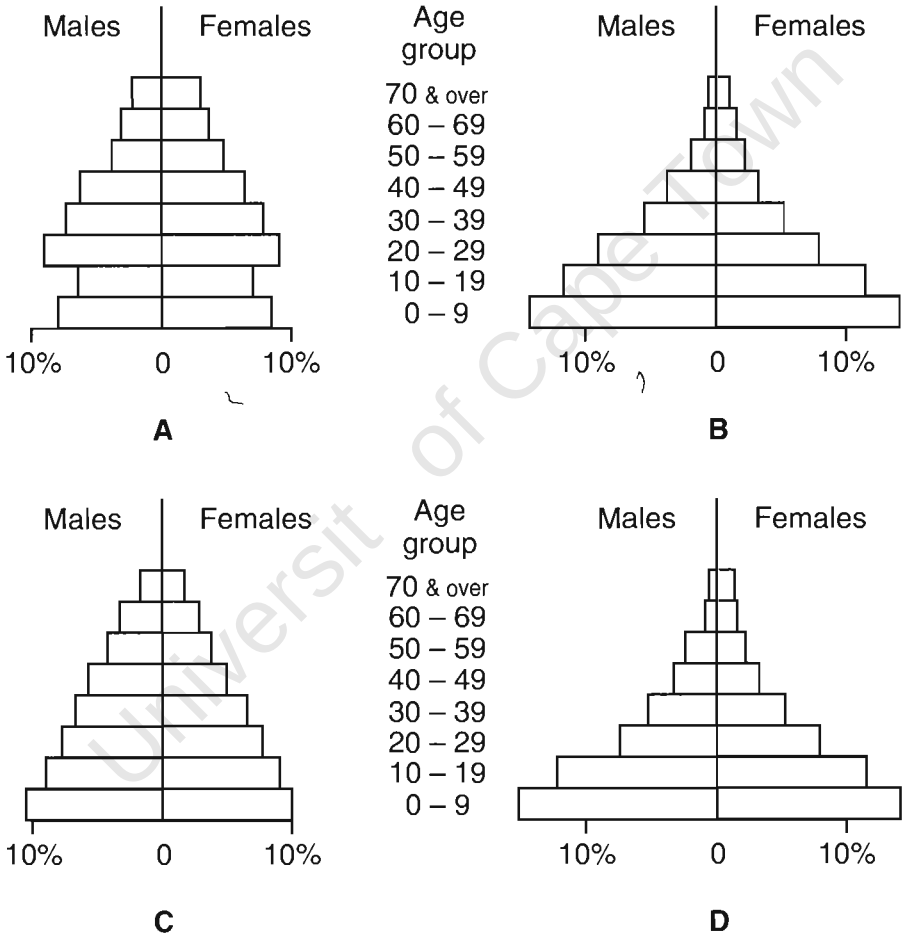


Fig. 8

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Appendix 32: 2003 development studies examiner's report

As in 2002 candidates' performance in research projects has shown some improvement. However some candidates still fail to adhere to the required research format, resulting in poor performance while others did not even submit their individual projects leading to their not being graded. Candidates have to observe the relationship of the three syllabus components, identify issues of concern in their own area and research them.

The performance in the other two papers is not encouraging due to lack of exposure of our candidates to efforts taken by governments globally and the developing world to combat poverty. Our candidates are therefore lagging in the use of up to date development terminology such as sustainable development, gender issues, HIV/AIDS, racism, abuse and other world concerns in relation to development. The performance in 2003 is 64% overall passes.

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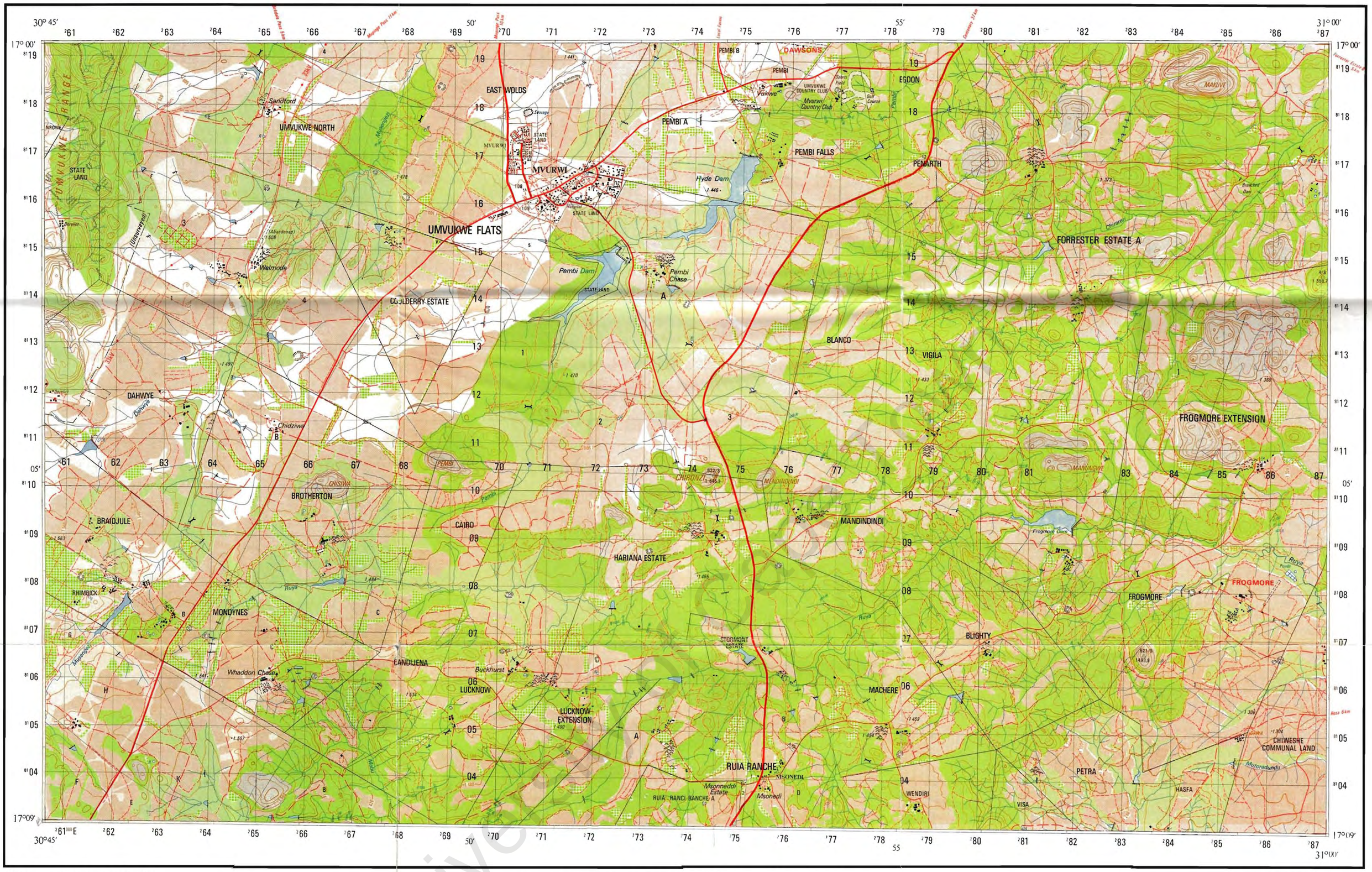
EAST WOLDS
UMVUKWE NORTH
MVURWI
PEMBI A
PEMBI B
DAWSONS
PEMBI
EGDON
PEMBI FALLS
PENARTH
UMVUKWE FLATS
Hyde Dam
Pembi Dam
Pembi Chase
A
COULDERRY ESTATE
FORRESTER ESTATE A
BLANCO
VIGILA
DAHWYE
FROGMORE EXTENSION
BROTHERTON
CHISIWA
BRAIDJULE
CAIRO
MANDINDINDI
HARIANA ESTATE
RHIMBICK
MONDYNES
FROGMORE
BLIGHTY
EANDLENA
Whaddon Chase
LUCKNOW
LUCKNOW EXTENSION
MACHERE
RUIA RANCHE
MSONEDI
Msonneddi Estate
RUIA RANCI RANCHE A
PETRA
WENDIRI
VISA
HASFA
CHIWESHE COMMUNAL LAND
STORMONT ESTATE
Umvukwe Range
Sandford
Welmode
Chidziwa
Dahwye
Pembi
Chironzi
Mandindindi
Manungwe
Frogmore Dam
Buckhurst
Msonedi
Mutoradundi
Makuve
Vakwe
Mvurwi Country Club
Golf Course
Sewage
Stn
Dam
Ruya
Pamba
Chirarei
Brackenbrook Dam
Forestry Estate
Rose Farm
Derelict
Unsurveyed
(Abandoned)
STATE LAND
Waterpoint
Mwangwi
Musengezi
Mwami
Pembi
Chironzi
Mandindindi
Manungwe
Makuve
Ruya
Pamba
Chirarei
Dahwye
Mwami
Musengezi
Mutoradundi
Rose Farm
Forestry Estate
Brackenbrook Dam
Frogmore Dam
Vakwe
Mvurwi Country Club
Golf Course
Sewage
Stn
Dam
Derelict
Unsurveyed
(Abandoned)
STATE LAND
Waterpoint
Sandford
Welmode
Chidziwa
Msonneddi Estate
Msonedi
RUIA RANCI RANCHE A
STORMONT ESTATE
Umvukwe Range
Mwangwi
Musengezi
Mwami
Buckhurst
Whaddon Chase
Pembi
Chironzi
Mandindindi
Manungwe
Makuve
Ruya
Pamba
Chirarei
Dahwye